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OIL SEPARATOR

ECODEPUR[®] TECHNOIL[®]

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ECODEPUR® TECHNOIL® Oil Separators are designed to separate mineral oils from oily wastewater, for underground installation.

They were designed and defined in accordance with European Standard EN 858-1:2002, presenting CE Marking, in compliance with the legal requirement that arises from the entry into force of Regulation (EU) No. 305/2011 of the European Parliament, for Construction Products.

ECODEPUR® TECHNOIL® Oil-Water Separators are Class 1 in accordance with standard EN858, featuring a double coalescent filter and automatic closure device. They allow obtaining a final effluent with an oil concentration lower than 5 mg/l, under the test conditions of the aforementioned standard.

The raw material used (polyethylene) was tested by an independent entity (Laboratório Nacional de Engenharia Civil – LNEC), in line with the requirements of Standard EN 858-1:2002, guaranteeing high mechanical resistance and corrosion protection.



VANTAGENS

- CE Marking according EN 858-1;
- High treatment levels (double filtration system);
- Automatic closure device (massive anti-miscalibration system);
- Built-in sample collection device;
- Protective cover for internal components in PE;
- Possibility to incorporate a by-pass and an oil alarm system directly within the equipment structure;
- High storage capacity for separated products;
- High mechanical resistance and corrosion protection;
- Underground installation;
- Light and easy to install and maintain;
- Totally watertight;
- Without power consumption.



APPLICATION

Water contaminated with oils interferes with the domestic wastewater drainage systems and creates a negative impact on the natural receptor environment (water and soil).

DISCHARGE INTO SEWER NETWORK	DISCHARGE INTO NATURAL ENVIRONMENT (water and soil)	
<ul style="list-style-type: none"> • The hydrocarbons constitute a major source of contamination of sewerage networks and treatment of domestic wastewater; • In addition to the risk associated with serious malfunctioning of treatment facilities caused by these substances (particularly in terms of inhibition of biological degradation processes), they also contaminate sludge process as well as the effluent discharged. 	<p>Main impacts:</p> <ul style="list-style-type: none"> • Chemical toxicity with consequent lethal effects or deterioration of cellular functions; • Chemical toxicity with consequent lethal effects, sub-lethal effects or deterioration of cellular functions ; • Ecological changes, particularly regarding the loss of representative organisms in a community and the proliferation of so-called opportunistic species within the affected habitats; • Indirect effects such as loss of habitat, leading to the elimination of species of high ecological importance. 	

To comply with current legislation, light liquid separator should be installed in places where oily wastewaters are produced, namely:

- Service stations (including private supply post and cooperative);
- Fuel storage and distributions areas;
- Vehicle workshops;
- Washing areas;
- Scrap yards;
- Car Parks;
- Airports.

CONFORMITY WITH THE EN 858-1

Light Liquid Separators - Part 1: Principles of design, performance and testing, marking and quality control

Light Liquid separators must have CE marking according to legal requirements that come from the European Parliament Regulation (EU) N° 305/2011, about the construction products. Each separator must be accompanied by the respective **performance statement** with the following information:

PRODUCT: Light Liquid Separators

APPLICATION: Separate light liquids from wastewater to protect sewage systems and surface water

ESSENTIAL CHARACTERISTICS	REQUIREMENT WITH THE STANDARD EN 858-1	PERFORMANCE
FIRE REACTION	6.2.8	F
LIQUID TIGHTNESS	6.3.2	Pass
EFFECTIVENESS	4, 6.3.1, 6.3.3 to 6.3.8, 6.5	Pass
LOAD BEARING CAPACITY	6.4	Pass
DURABILITY	6.2	Pass

At the same time the manufacturer must ensure an **internal quality control**, for example, a quality management system according to ISO 9001 for devices' production.

MAIN CHARACTERISTICS

EUROPEAN STANDARD	EN 858.1
EQUIPMENT IDENTIFICATION	Oil Separator
BRAND	ECODEPUR®
TYPE	TECHNOIL®
CLASS EN 858-1	1 (<5,0 mg "Mineral Oils"/l ⁽¹⁾)
COALESCENT CELL	Double (Lamellar/Fibrillar) ⁽²⁾
AUTOMATIC CLOSURE DEVICE	Included (system always calibrated)
FIRE REACTION CLASS	F
MATERIAL	Polyethylene
SLUDGE TRAP	Included
VENTILATION OUTLET	Included
COVER	Polyethylene

Technical Note I: In accordance with European Standard EN 858-1: 2002, point 6.6.1, access covers must comply with the EN124 Standard featuring the inscription "SEPARATOR" and the respective Load Class. ECODEPUR® TECHNOIL® Oil-Water Separator includes protective cover(s) in Polyethylene, and **the customer must purchase the access cover(s) in accordance with Standard EN 124 and "SEPARATOR" marking, being the customer's responsibility to put it into the installation phase.** **Technical Note II:** In accordance with European Standard EN 858-1: 2002, point 6.5.4, separation equipment must be equipped with an automatic alarm device, and the installation of this equipment without this device is subject to approval by the competent local authorities.

OPERATION

Light Liquid Separator allow the entry of non-chemically emulsified oily waters containing hydrocarbons (Eg. Oil and Petro) with densities between 0,85 and 0,95. Heavier materials (sludge, sand, etc) settle into the Pre-Sludge Trap compartment and are trapped there. This compartment also holds hydrocarbons that easily float. Only water and substances lighter than water, namely the oil particles intended for separation, pass through to the separation zone.

To optimise this process, separators are fitted with a coalescing filter, which traps the smallest oil particles, causing them to agglomerate into larger particles and consequently giving them enough upward force to propel them towards the surface. In this chamber, the hydrocarbons will accumulate on the surface, while the clean water will sink to equipment bottom.

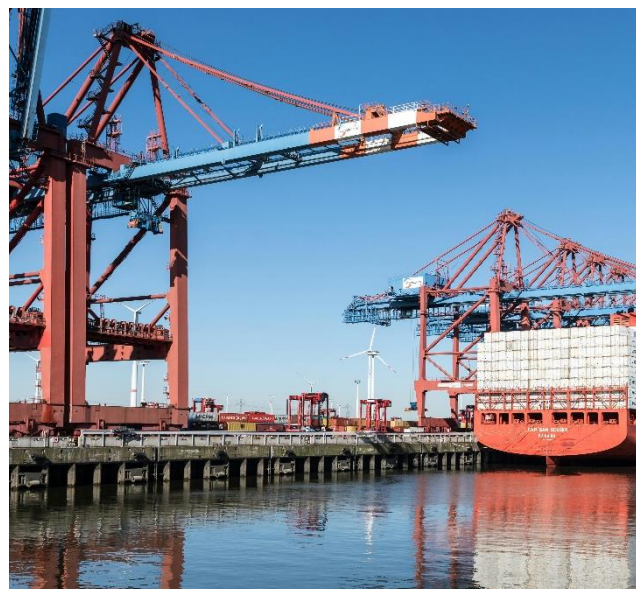
The Oil Separator is equipped with an automatic closure devise (massive anti-miscalibration system), which prevents the escape of oils once the maximum retention capacity of the equipment has been reached, thus preventing contamination of the environment. The operation of Oil-Water Separators does not require energy consumption, based on the gravitational separation of materials with a density different from water, assisted by the presence of a coalescent cell of an oleophilic nature.

Upstream of the separator, it is recommended to install a flow regulating valve, ensuring that the inlet flow rate matches the equipment's design flow rate.

For large contaminated impermeable surfaces subject to rainwater, we can use Oil Separators with an integrated bypass to avoid oversizing the installation with excessively high investment costs.

Oil Separators with an integrated bypass take into account that contaminated rainwater corresponds only to the initial period of rainfall, and that after the runoff from the first rains, surface runoff water carries very few pollutants and can be diverted from the treatment line without causing any environmental issues.

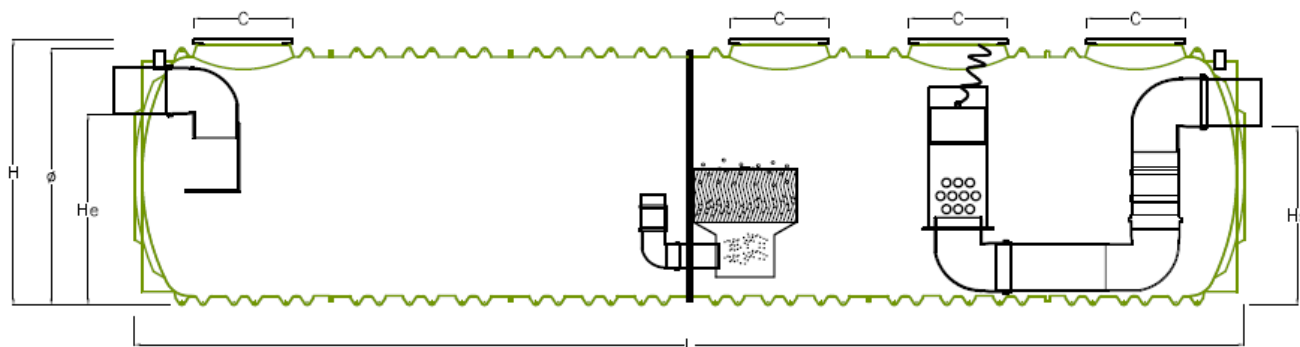
In these situations, it is recommended to use the ECODEPUR® TECHNOIL® Oil Separator with an integrated bypass at a treatment ratio of X, meaning that only X% of the maximum inlet flow will pass through the Oil Separator at the respective nominal flow rate, while the rest flows directly to the outlet through the bypass pipe, preventing the equipment from becoming saturated.



DIMENSIONS

OPTIONS

OIL ALARM SYSTEM
 CAST IRON COVER
 ABSORPTION AND BIOLOGICAL
 DETERIORATION OF HYDROCARBONS
 OILSKIMMER



TYPE	NS (l/s)	VOLUME TOTAL (l)	Ø (mm)	L (mm)	H (mm)	He (mm)	Hs (mm)	C (mm)	ØPIPE (mm)	WEIGHT (kg)
TECHNOIL® NS50	50	10.000	2.190	3.440	2.265	1.685	1.585	790	315	580
TECHNOIL® NS100	100	20.000	2.190	6.520	2.265	1.685	1.585	790	315	940
TECHNOIL® NS150	150	30.000	2.190	9.600	2.265	1.600	1.500	790	400	1.350
TECHNOIL® NS200	200	40.000	2.190	12.680	2.265	1.500	1.400	790	500	1.810
TECHNOIL® NS250	250	50.000	2.980	8.310	3.050	2.210	2.110	790	500	2.300
TECHNOIL® NS300	300	60.000	2.980	9.850	3.050	2.210	2.110	790	500	2.850
TECHNOIL® NS350	350	70.000	2.980	11.390	3.050	2.080	1.980	790	630	3.150
TECHNOIL® NS400	400	80.000	2.980	12.930	3.050	2.080	1.980	790	630	3.650
TECHNOIL® NS450	450	90.000	2.980	14.470	3.050	2.080	1.980	790	630	4.200
TECHNOIL® NS500	500	100.000	2.980	16.010	3.050	2.080	1.980	790	630	4.750
TECHNOIL® NS550	550	110.000	2.980	17.550	3.050	2.080	1.980	790	630	5.050
TECHNOIL® NS600	600	120.000	2.980	19.090	3.050	2.000	1.900	790	710	5.700

The pictures and dimensions can be changed without notice.
 The dimensions indicated have a tolerance of $\pm 2\%$.

INSTALLATION

USAGE LIMITATIONS

Oil separators should only be installed in drainage systems where the "liquid light" need to be separated from the effluent and retained within the separator. They must not be installed in drainage lines containing sewage or domestic waste water.

The rainwater drainage areas unlikely to be contaminated with hydrocarbons (Ex. roofs or grassy areas) should not be discharged into the hydrocarbons separator.

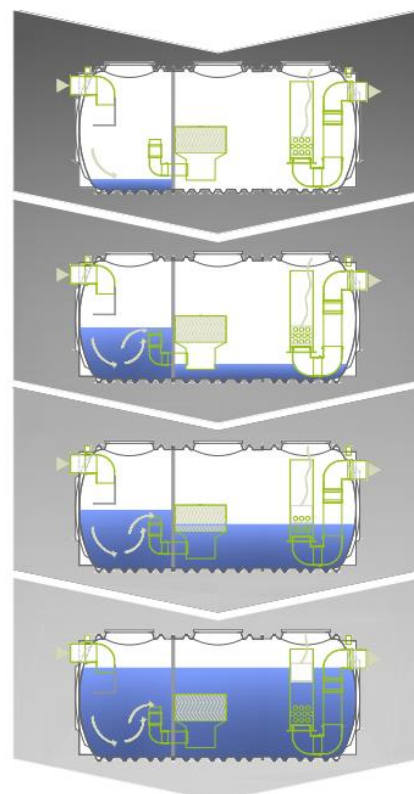
The rainwater drainage areas unlikely to be contaminated with hydrocarbons (Ex. roofs or grassy areas) should not be discharged into the hydrocarbons separator.

INSTALLATION

ECODEPUR® Oil separators must be installed following the recommendations of the document supplied **Installation PE Reactors/Tanks (Ø 2.190 or Ø2.980)**, which are provided with the Product Catalog.

Simultaneously, one should take into account the following considerations:

1. Before the landfill equipment make sure the good condition of the equipment and the connections of the pipes are tight and watertight;
2. The vicinity of the excavation must be stabilized soils (not stirred);
3. The filling of the tank should be done with clean water, through the inlet pipe and simultaneously performing the landfill in successive layers. When the water level reaches outlet tube, pull the nylon string attached to the float and verify that it remains floating;
4. The soils where it will be made the installations should always be well drained and must avoid putting facilities in periods of high rainfall or in the immediate days;
5. Upstream separator must be constructed a decanter solids in order to increase the storage capacity of the system solids, avoiding potential fouling phenomena downstream. The decanter solids should have a minimum effective volume of 2500 liters in accordance with section 4.1.1 of the standard DIN1999 - Part 2. If the inflow of a very high amount of solids may be expected, the volume solids of the settler should be incremented;
6. The protective covers supplied with the equipment are built in linear polyethylene; it's a customer's responsibility the acquisition of additional access covers according to the EN124 standard and with the inscription "SEPARATOR" according to EN858 standard. The installation of access covers should be held to the surface, respecting the areas consistent with the assigned class. (Ex: Tampa at FF, Class B125 - riding, pedestrian areas and comparable areas, car parks and parking silos for light vehicles);
7. Should not be allowed to separate hydrocarbons spilled to the outside by the pipe or the access covers. The hydrocarbon separator must be installed so that the upper level of the manhole (ground level) is higher than the surface level of the water line to drain out. This measure will prevent the oil accumulated on the surface from escaping to the outside. In general this level is the highest level of the gutter or drain the drainage network.



In case of any doubt should always contact the technical services ECODEPUR - Tecnologias de Protecção Ambiental, Lda.

MAINTENANCE

ECODEPUR® TECHNOIL® Separator do not need special care from a structural point of view, due to the high resistance and corrosion protection of the material from which they are made. As a result, only the following items need to be checked, at least every three months:

- **Oil layer thickness**

Oils will accumulate in the water layer and must be removed whenever they reach a thickness of 10 cm (this can be checked manually by probing the surface with a stick, or with an Oil alarm system).

- **Deposits in the base**

Sludge and sand will accumulate in the first chamber bottom (a higher or lower quantity, depending on the characteristics of the sludge trap installed upstream the separator). These must be removed whenever they reach a thickness of 20 to 30 cm. The thickness of this sludge layer can be checked manually by prodding the sludge with a stick, or automatically using a sludge alarm system.

- **Oleophilic coalescing filters**

Whenever oils are cleaned out of the separator, the coalescing filters must be washed out. This procedure is carried out simply by using a cold pressure water jet, with the water remaining in the equipment after this process channelled to the end destination along with the remaining residue removed. This procedure must also be carried out if there is any reduction in the hydrocarbon separator drainage capacity (clogged filters).

After discharge, the separator should be refilled with clean water, pull the chain attached to the float, and check if it floats freely on the water's surface.

- **Automatic Closure device**

The buoyancy conditions (if it floats free, if it is stuck or if it sinks) of the float must be checked. The float must be cleaned of debris, mud or oil accumulated on the surface.

- **Alarm system**

The operation of the alarm device must be tested.

- **Sampling boxes**

The drainage channel must be cleaned.

If there is an extraordinary need that requires personnel to enter the Oil Separator, proper ventilation of the area must be ensured.

WARRANTY

Five (5) years, covering any manufacturing defects. ECODEPUR® will be responsible for introducing corrective measures aimed at correct equipment operation, if necessary. ECODEPUR® will not be responsible if there are clear indications of poor installation, misuse (including the use of stable emulsions) or poor maintenance, or if it is shown that the equipment was overloaded, based on the terms stipulated in Standard EN 858.

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WATER AND WASTEWATER TECHNOLOGIES

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