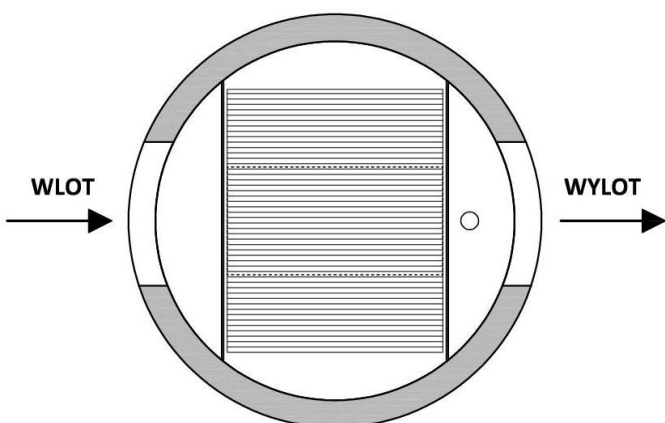
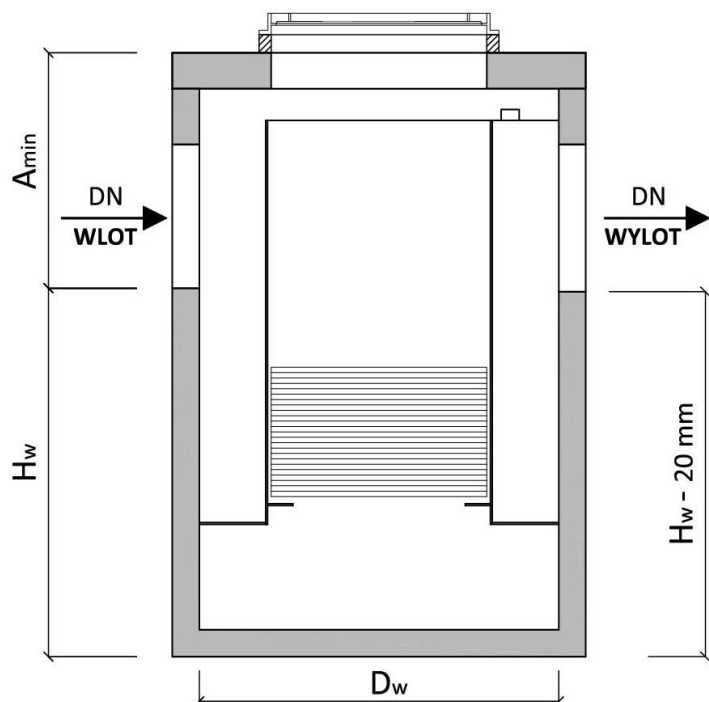


SPECIFICATION SHEET | ESL-ZO

High-efficiency lamella separator with settling tank



The technical specifications of each device series with technical description and possible modifications of the dimensions can be found at www.ecol-unicon.com

Separators ESL-ZO separators were tested for nominal and maximum flows and the results of the tests were confirmed by the Building Research Institute by issuing the National Technical Assessment ITB-KOT-2017/0212 edition 2. ESL-ZO separators represent class I (according to EN 858), it also obtained CE mark allowing to be applied in all EU countries.

The chamber is made in accordance with Norm EN 1917), concrete of class at least C35/45 waterproof $\geq W8$, with water absorption lower than 5%, frost resistant F150 in the water and F50 in 2% NaCl, stable for petroleum products in accordance with EN 858-1. The chamber is certified by the National Institute of Public Health (NIPH-NIH) with the number B-BK-60210-1125/20 valid until 2023-07-28.



*) Q_{nom} [dm^3/s] (NS) – nominal flow value for which > 99% impurities is stopped (value obtained during the tests according to norm EN 858-1) and 80% of general sediments

Q_{max} [dm^3/s] – maximum hydraulic flow capacity of the device, at which there is no danger of flushing out the accumulated pollutants

V_{os} [dm^3] – capacity of the settling tank section

S – mark "S" in the model name indicates delivery to construction site in elements, for the final assembly on site

**) Increasing the A value through the use of additional superstructure rings.

SPECIFICATION SHEET | ESL-ZO

High-efficiency lamella separator with settling tank

Model $Q_{nom}/Q_{max}/V_{os}^*$	Flow		Dimensions			Pipe diameter inlet/outlet DN [mm]	Actual capacity of the settling tank section [dm ³]	Oil storage capacity [dm ³]	Weight of the heaviest element [kg]	Total weight [kg]
	Q_{nom} [dm ³ /s] (NS)	Q_{max} [dm ³ /s]	Diameter D_w [mm]	H_w [mm]	A_{min}^{**} [mm]					
ESL-ZO 15/150/1500 (1500) S	15	150	1500	2240	1290	max 800	2000	225	2900	6600
ESL-ZO 15/150/3000 (1500) S	15	150	1500	2800	1300	max 800	3000	225	4000	7900
ESL-ZO 20/200/2000 (1500) S	20	200	1500	2250	1280	max 800	2000	300	2900	6600
ESL-ZO 20/200/4000 (1500) S	20	200	1500	3380	1400	max 800	4000	300	5600	9400
ESL-ZO 30/300/3000 (1500) S	30	300	1500	2980	1550	max 800	3000	450	4500	8500
ESL-ZO 40/400/4000 (1500) S	40	400	1500	3590	1440	max 800	4000	600	5600	9500
ESL-ZO 50/500/5000 (1500) S	50	500	2000	4260	1340	max 800	5000	750	4000	11000
ESL-ZO 30/300/3000 (2000) S	30	300	2000	2250	1320	max 800	3600	450	4000	8600
ESL-ZO 30/300/6000 (2000) S	30	300	2000	3010	1310	max 800	6000	450	5800	10400
ESL-ZO 40/400/4000 (2000) S	40	400	2000	2390	1430	max 800	4000	600	4000	8600
ESL-ZO 40/400/8000 (2000) S	40	400	2000	3670	1400	max 800	8000	600	7000	11700
ESL-ZO 50/500/5000 (2000) S	50	500	2000	2790	1530	max 800	5100	750	5200	9800
ESL-ZO 60/600/6000 (2000) S	60	600	2000	3140	1430	max 800	6000	900	5800	10500
ESL-ZO 70/700/7000 (2000) S	70	700	2000	3510	1310	max 800	7000	1050	6400	11100
ESL-ZO 75/750/7500 (2000) S	75	750	2000	3700	1370	max 800	7500	1125	7000	11700
ESL-ZO 80/800/8000 (2000) S	80	800	2000	3890	1430	max 800	8000	1200	7700	12300
ESL-ZO 40/400/4000 (2500) S	40	400	2500	1930	1390	max 800	4000	600	4300	10400
ESL-ZO 40/400/8000 (2500) S	40	400	2500	2740	1580	max 800	8000	600	6500	12500
ESL-ZO 50/500/5000 (2500) S	50	500	2500	2140	1430	max 800	5000	750	4800	11000
ESL-ZO 50/500/10000 (2500) S	50	500	2500	3160	1410	max 800	10000	750	7900	14100
ESL-ZO 60/600/6000 (2500) S	60	600	2500	2390	1430	max 800	6000	900	4800	11000
ESL-ZO 60/600/12000 (2500) S	60	600	2500	3610	1460	max 800	12000	900	6500	12600
ESL-ZO 65/650/6500 (2500) S	65	650	2500	2510	1560	max 800	6500	975	5700	11800
ESL-ZO 65/650/13000 (2500) S	65	650	2500	3830	1490	max 800	13000	975	7900	14100
ESL-ZO 70/700/7000 (2500) S	70	700	2500	2640	1430	max 800	7000	1050	5700	11800
ESL-ZO 70/700/14000 (2500) S	70	700	2500	4070	1500	max 800	14000	1050	7900	14100
ESL-ZO 75/750/7500 (2500) S	75	750	2500	2760	1560	max 800	7500	1125	6500	12600
ESL-ZO 80/800/8000 (2500) S	80	800	2500	2880	1440	max 800	8000	1200	6500	12600
ESL-ZO 90/900/9000 (2500) S	90	900	2500	3370	1450	max 1200	10000	1350	7900	14100
ESL-ZO 100/1000/10000 (2500) S	100	1000	2500	3370	1450	max 1200	10000	1500	7900	14100
ESL-ZO 90/900/9000 (2500) S DN1200	90	900	2500	3370	1950	max 1200	10000	1350	7900	14100
ESL-ZO 100/1000/10000 (2500) S DN1200	100	1000	2500	3370	1950	max 1200	10000	1500	7900	14100
ESL-ZO 70/700/7000 (3000) S	70	700	3000	2170	1680	max 1200	7000	1050	6600	14600
ESL-ZO 75/750/7500 (3000) S	75	750	3000	2240	1610	max 1200	7500	1125	6600	14600
ESL-ZO 75/750/15000 (3000) S	75	750	3000	3440	1660	max 1200	15000	1125	8700	16700
ESL-ZO 80/800/8000 (3000) S	80	800	3000	2460	1680	max 1200	8000	1200	7700	15700
ESL-ZO 90/900/9000 (3000) S	90	900	3000	2510	1590	max 1200	9000	1350	7700	15700
ESL-ZO 90/900/18000 (3000) S	90	900	3000	3780	1570	max 1200	18000	1350	10400	18500
ESL-ZO 100/1000/10000 (3000) S	100	1000	3000	2690	1410	max 1200	10000	1500	7700	15700
ESL-ZO 100/1000/20000 (3000) S	100	1000	3000	4100	1500	max 1200	20000	1500	8700	21300
ESL-ZO 70/700/7000 (3000) S DN1200	70	700	3000	2170	1930	max 1200	7000	1050	6600	14600
ESL-ZO 75/750/7500 (3000) S DN1200	75	750	3000	2240	1860	max 1200	7500	1125	6600	14600
ESL-ZO 75/750/15000 (3000) S DN1200	75	750	3000	3440	1910	max 1200	15000	1125	8700	16700
ESL-ZO 80/800/8000 (3000) S DN1200	80	800	3000	2460	1890	max 1200	8000	1200	7700	15700
ESL-ZO 80/800/16000 (3000) S DN1200	80	800	3000	3470	1880	max 1200	16000	1200	8700	16700
ESL-ZO 90/900/9000 (3000) S DN1200	90	900	3000	2510	2090	max 1200	9000	1350	7700	15700
ESL-ZO 90/900/18000 (3000) S DN1200	90	900	3000	3780	2070	max 1200	18000	1350	10400	18500
ESL-ZO 100/1000/10000 (3000) S DN1200	100	1000	3000	2690	1910	max 1200	10000	1500	7700	15700

High-efficiency lamella separator with settling tank

TECHNICAL DESCRIPTION

The ESL-ZO separator is a device designed to separate and store suspended solids and oil-derived substances. It is used for treatment of rainwater discharged from urban areas, roads, facilities (e.g. factories and industrial areas, logistics centres, airports) or sewage. The separator is integrated with a settling tank and is used primarily in highly urbanized areas. The separator has been tested for nominal and maximum flows, complies with the PN-EN 858-1 standard and National Technical Assessment, has CE marking and construction mark.

Operational parameters

The ESL-ZO separator is characterised by the following parameters
Q_{nom} [dm³/s] (NS) - nominal throughput of the device, at which > 99.9% of oil-derived pollutants are retained (result obtained during testing of the device according to the requirements of the PN-EN 858-1 standard) and > 80% of total suspended solids.

Treatment efficiency < 5 mg/dm³ of oil-derived substances and < 100 mg/dm³ total suspended solids at discharge at nominal flow rate.

Q_{max} [dm³/s] - maximum hydraulic capacity of the unit, at which there is no danger of flushing out accumulated pollutants.

V_{os} [dm³] - capacity of the sedimentation part

Construction

The chamber is an EU concrete well made of prefabricated concrete and reinforced concrete elements, made of vibro-pressed concrete of at least class C35/45, watertight ≥W8, with water absorption below 5%, frost resistant F150 in water and F50 in 2% NaCl. The concrete has been tested for resistance to petroleum-based substances in accordance with EN 858-1, therefore no internal coating is used. The concrete body is produced according to EN 1917 and is designed for a test load of 300kN (according to EN 1917). Depending on the separator location, cast iron manholes of A15 - D400 class are used. In order to adjust the top of the separator cover to the ground ordinate, an additional superstructure made of concrete rings of a diameter corresponding to the diameter of the chamber is applied. The inlet and outlet are located in the separator axis by default. Another angle between the inlet and outlet is possible. The chamber can also be made of PE-HD plastic in resistance classes SN2, SN4 and SN8 [kN/m²] according to PN-EN ISO 9969:2007.

Equipment

Standard equipment includes internal baffles and cross-flow plate multistream lamella inserts to aid separation. Above nominal flow also flows through the pre-treatment system. Internal equipment is made of PEHD, which is characterised by high chemical resistance and mechanical strength.

Safety

The design of the device prevents the stored oil-based substances from entering the drainage system. The alarm system with oil level sensors enables remote monitoring of the device's operation, reduces operating costs and increases environmental safety in case of failure. The alarm system can be powered by 230V, battery or solar power.

Operation

Cleaning of the separator can be done from the ground level and does not require going inside the device. The lamella packs are removable and can be reused after cleaning. Removal of the lamella packets outside and reinsertion inside the separator does not require dismantling of the cover. Accumulated contaminants and internal equipment inspections should be performed at least once every six months..

Storage

Prefabricated elements should be stored in the built-in position. The storage area should be level, even, drained and, if possible, paved. If stored on an unpaved area, the first element should be placed on wooden (or other) blocks. Prefabricated elements can be stored in stakes by separating successive elements with wooden spacers. The height of the stakes should not exceed 2 m for rings and covers. Prefabricated elements should be stored out of direct sunlight and out of direct exposure to the elements.

Ground preparation and foundation

The method of foundation of the separator chamber in the ground should be specified in the technical documentation. In case of:

- **load-bearing soils** - the bottom of the excavation in the place of the chamber foundation may be prepared with a 15 cm thick C8/10 concrete substructure or by spreading a layer of coarse gravel or gravel bedding at least 15 cm thick and compacting it to the right level and density according to the design.
- **high ground water level** - The foundation should take into account the buoyancy force on the chamber. If the buoyancy force exceeds the weight of the empty tank, a counterweight or special plate must be provided to anchor it. Static calculations must be carried out in accordance with the applicable standards.

The foundation of the chamber elements should follow: specified sequence, proper ordinates, inlet - outlet angles, verticality of the structure.

Compliance with legal requirements

Properly selected Ecol-Unicon separators purify rainwater from oil-derived substances to a concentration below 5 mg/dm³, have CE marking and construction mark, and meet the requirements specified by:

- § 17.1 of the Regulation of the Minister of Maritime Affairs and Inland Navigation of 12 July 2019: < 100 mg/dm³ total suspended solids and < 15 mg/dm³ oil-derived substances in discharged rainwater.
- EN 858-1 for Class I separators: concentration of petroleum substances in the separator outlet < 5 mg/dm³.