

Test Report

REPORT NO:
1321579-1R



**DANISH
TECHNOLOGICAL
INSTITUTE**

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Page 1 of 6
Initials: SCL/UHI
Order no.: 1321579-1R
Appendices: 3

Customer: Contact: Jacob L. Kristensen
Company: Watercare
Address: Stejlebjergvej 14
Town: DK - 5610 Assens

Material: The oil separator is a size NS 3, class I from Watercare. There was no sludge trap combined to the separator.

All materials are PE except the inlet and outlet. The coalescence filter is made of PPI scum. Inlet is $\varnothing 110$ mm and outlet is $\varnothing 110$ for the NS 3 oil separator. A conceptual drawing of the separator is shown in appendix B. Testing was carried out on a prototype-separator.

Sampling: The test material was sampled and sent by Watercare and received at the Danish Technological Institute in February 2007. A new drawing has been checked in December 2020.

Method: The test was carried out according to EN 858-1:2002 + A1:2005, clause 4, 6.2, 6.3.1-6.3.8 and 6.5.1. Analysis of the oil content of the water is carried out by Eurofins Denmark which is accredited to carry out these analyses.

Period: The test separator was sent to the Danish Technological Institute by the manufacturer. The test was carried out the 21th of February 2007.

Result: The test shows that the separator meets all relevant requirements in CEN standard EN 858-1:2002+A1:2005. With a flow of 3 l/s, there is a content of residual oil at 1.8 mg/l in the discharge. The separator can be placed in class I (maximum 5 mg/l oil in the discharge). The results are shown in appendix A. Furthermore the separator system follows the requirements of section 6.3.2-6.3.5 and 6.5.1-6.5.3 in the CEN standard EN 858-1 /A1 - 2005.

Terms: The test has been performed according to the rear side conditions, which are according to the guidelines laid down by DANAK (The Danish Accreditation). The testing is only valid for the tested specimen.
The test report may only be extracted, if the laboratory has approved the extract.

Place: Date 18.12.2020, Technological Institute, Taastrup, Pipe Centre

Signatur: Ulrik Hindsberger
Director




Test Reg. nr. 02



Test conditions, extracts from CEN standard DS/EN 858-1

Reference to section in CEN standard DS/EN 858-1

- 6.2 Materials**
All materials are PE except the inlet and outlet. All metals part is stainless steel. There is no documentation for the properties of the materials. The testing has not included checking specific documentation for the composition and oil-resistance of the materials, and no tests of the materials' tightness and resistance to oleaginous liquids have been carried out, except for tests of the separator's efficiency with subsequent observation, which gives no reason for further comment.
- 6.3.2 Watertightness has been testing according to 8.2**
The system has been tested by filling up water to 40 mm above the maximum operational liquid level. There were no leaks to the separator itself after 20 min of testing. The tightness of the extension shaft has not been tested. If extension shafts are used, the tightness of the connections must be tested after installation.
- 6.3.3 Accessibility**
The separator system including the inlet and outlet is accessible for maintenance and inspection.
- 6.3.4 Water seals**
The separator has a water seal at the inlet and outlet. The water seal is the result of the inlet and outlet being run through closed pipes, which are submerged at least 100 mm under all normal operating conditions.
- 6.3.5 Pipe and pipe joints**
The inlet of the separator is 110 mm and the outlet is 110 mm which is correct according to table 2 in EN 858-1. Inlets and outlets **were tight** at the watertightness test.
- 6.5.1 Safeguard against reflux**
There is no risk of reflux in the inlet during normal operations.
- 6.5.2 Storage Capacity**
Watercare has informed that the storage capacity is calculated to 400 l (100%). With a capacity of 400 l there is still a safe distance to the upper edge of the outlet.
- 6.5.3 Automatic closure device**
The separator was not equipped with an automatic closure device. Watercare has informed that the automatic closure device only will be installed when necessary.
- 6.5.6 Determination of the nominal size and class**
The oil separator has been testing according to 8.3.3.
- 8.3.3 A. Surface levels in the separator**
During testing with a flow of 3 l/s there is more than 60 mm from the upper edge of the separator to the water level.
- B. Separator efficiency**
The test was carried out as described in EN 858-1.
- The samples in the separator outlet were taken through an inclined tube to the sample bottle.
- The following tests use an oil type with specifications corresponding to ISO 8217, ISO-F-DMA, with a density of $0.85 \pm 0.015 \text{ g/cm}^3$ at 12°C.



C. Method

The separator is measured and the dimensions noted on the manufacturer's drawing.

The separator is filled with water up to the outlet. The volume of water is called: $V_K = 1098$ litres.

Flow 3 l/s

Water at 3 l/s and oil at 15 ml/s (5 ml per l/s) is added for a period of:

$T_B = 4 \times V_K / Q_w \times 60$ minutes (though at least 15 minutes) plus the test period T_P , which is 5 minutes.

$T_B = 24$ minutes. **Oil is added for 24 minutes + 5 minutes, i.e. a total of 29 minutes.**

In the period T_P , samples are taken from the outlet directly to the sample bottle in the **first** minute after T_B , and then a further 4 samples at 1-minute intervals.

The 5 samples are analysed separately, and the test results given as the arithmetic calculated mean value.

Total quantity of oil: 26,1 l

Appendix A. Test results

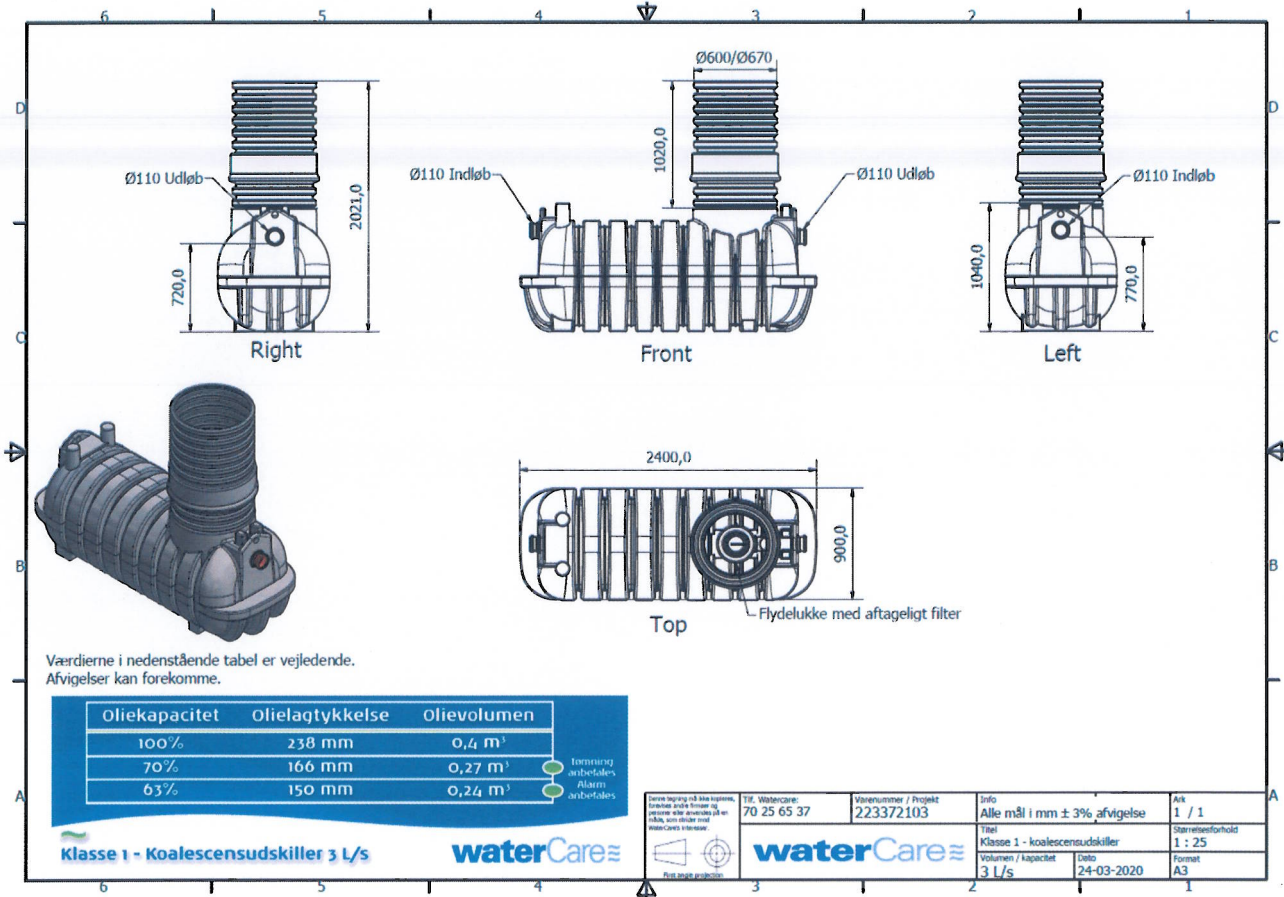
Sample glass no.	210210	210211	210212	210213	210214
Test/minutes	25	26	27	28	29

Results from analysis

Sample label	Variable	Result	Unit	Method used
Sample glass 210210	Total hydrocarbon	1.9	mg/l	EN 858-1, 2002
Sample glass 210211	Total hydrocarbon	2.1	mg/l	EN 858-1, 2002
Sample glass 210212	Total hydrocarbon	1.4	mg/l	EN 858-1, 2002
Sample glass 210213	Total hydrocarbon	1.9	mg/l	EN 858-1, 2002
Sample glass 210214	Total hydrocarbon	1.8	mg/l	EN 858-1, 2002
Arithmetic mean	Total hydrocarbon	1.8	mg/l	

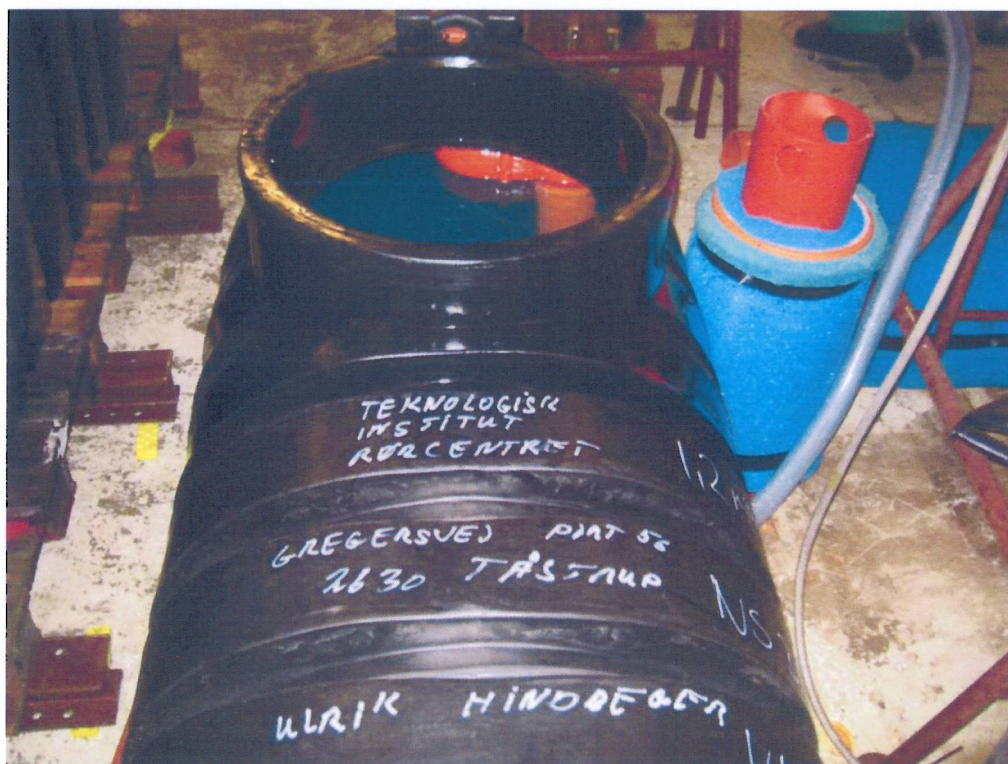


Appendix B. Drawing





Appendix C. Pictures from the test





The general conditions pertaining to assignments accepted by Danish Technological Institute shall apply in full to the technical testing or calibration at Danish Technological Institute and to the completion of test reports or calibration certificates within the relevant field.

Danish Accreditation (DANAK):

DANAK is the national accreditation body in Denmark in compliance with EU regulation No. 765/2008.

DANAK participates in the multilateral agreements for testing and calibration under European co-operation for Accreditation (EA) and under International Laboratory Accreditation Cooperation (ILAC) based on peer evaluation. Accredited test reports and calibration certificates issued by laboratories accredited by DANAK are recognized cross border by members of EA and ILAC equal to test reports and calibration certificates issued by these members' accredited laboratories.

The use of the accreditation mark on test reports and calibration certificates or reference to accreditation, documents that the service is provided as an accredited service under the company's DANAK accreditation according to EN ISO IEC 17025.

Construction Product Directive:

The Danish Technological Institute guarantees that employees carrying out tests to be used together with harmonized standards under notification no. 1235 according to EU regulation 305/2011, article 43, satisfy all the requirements made for capability, integrity and impartiality. You find the CPD here:

http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/construction-products/index_en.htm