DNV·GL

Certificate No:
MEDB000061U

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Oil-filtering equipment (for an oil content of the effluent not exceeding 15 p.p.m.)

with type designation(s)
15 ppm Bilge Water Separator, Models YSZ-0.1, YSZ-0.25, YSZ-0.5, YSZ-1, YSZ-2, YSZ-3, YSZ-4, YSZ-5

Issued to
Wuhan Zhongzhou Environment Protection Equipment Co., Ltd.
Wuhan, China

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2019/1397,**
item No. MED/2.1. Marpol 73/78 as amended, Annex I Regulation 14, IMO Res. MEPC.107(49), IMO MEPC.1/Circ. 643

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-06-09**.

Issued at **Høvik** on **2020-06-10**

DNV GL local station:
Wuhan CMC

Approval Engineer:
Thomas Grafton

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

NORWEGIAN ACCREDITATION PROD 019

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Product description

The 15 ppm Bilge Separators Model YSZ-Series are intended for installation onboard ships for oily bilge water separation; max. 15 ppm at discharge overboard. The bilge separator is a gravity-type and isolating-type oil-filtering device. The bilge separator uses a three-stage oil-filtering method consisting of gravity as first-stage treatment, coalescer as second stage, and an ultrafilter as third stage. The equipment is designed and tested to meet the requirements of the IMO Resolution MEPC.107(49).

Application/Limitation

Application:

Model:	***Max. Flowrate (m^3/h)***	***Supply Pump Capacity (*) (m^3/h)***	***Supply Pump Type (Part No.)***	***Supply Pump Motor Rating (*) (kW at 1400 rpm)***
YSZ-0.1	0.1	0.1	DZ-100	0.12
YSZ-0.25	0.25	0.25	DZ-250	0.18
YSZ-0.5	0.5	0.5	DZ-500	0.25
YSZ-1	1.0	1.0	DZ-1000	0.37
YSZ-2	2.0	2.0	DZ-2000	0.75
YSZ-3	3.0	3.0	DZ-3000	1.10
YSZ-4	4.0	4.0	DZ-4000	1.50
YSZ-5	5.0	5.0	DZ-5000	1.50

Applicable to all Models (unless specified otherwise)	
Operating Pressure:	Max. 0.3 MPa
Operating Temperature of Bilge Water:	30 - 40 °C An electrical heater is fitted to all models except YSZ-0.1. The heater shall be used when the temperature of the bilge water is =<20 °C
Power Supply:	380 V / 50 Hz, 3-phase 440 V / 60 Hz, 3-phase
Inclination Range:	0 to 22.5 degrees

(*) The YSZ Series are fitted with an integral electric plunger pump. The pumping capacity is set to the correct value through the power setting of the motor.

Limitations :

The electrical heater shall be manually switched on when the temperature of the bilge water is =<20 °C.

The equipment is not permitted to be installed in spaces subject to explosion hazards.

The YSZ Series are fitted with an integrated 15ppm Oil Content Monitor complying with MARPOL Annex I Regulation 14 and IMO Res.MEPC.107(49). The YSZ Series is normally fitted with the Jiujiang Gongchuang Machinery Equipment Co., Ltd. "XOC-01" Oil Content Meter. The 15ppm Oil Content Monitor shall be provided with separate EU Marine Equipment Type Approval Certificates.

Pumps listed in the Type Examination Documentation may be exchanged for another manufacturer with the same pump speed delivery characteristics curve. The new and old pump speed delivery characteristics curve shall be included with the copy of this certificate delivered with the Separator.

Installation:

The following shall be verified after installation: -

1. An alarm in the 15ppm Oil Content Monitor is always activated whenever clean water is used for cleaning or zeroing purposes.
2. An alarm in the 15ppm Oil Content Monitor is always activated whenever no flow of sample through the oil content monitor is detected by the flow sensor
3. Any alarm in the 15ppm Oil Content Monitor will activate the automatic stopping device preventing overboard discharge and lead to recirculation
4. The overall response time (including the response time of the 15 ppm Bilge Monitor) between an effluent discharge from the 15 ppm Bilge Separator exceeding 15 ppm, and the operation of the Automatic Stopping Device preventing overboard discharge, shall be not more than 20 seconds.
5. Every access of the alarm (beyond check on instrument drift, repeatability of the instrument reading, and the ability to re-zero the instrument) requires breaking of a seal.

A copy of the Operation, installation and maintenance manual shall be available on-board the ship/marine unit at all times.

Type Examination documentation

CSDX-1	b (2019-08-28)	Electrical schematic CSDX-1 (for model YSZ-0.1)
CSDX-2	b (2019-08-28)	Electrical schematic CSDX-2 (for model YSZ-0.25)
CSDX-3(4,6,7,8,9)	b (2019-08-28)	Electrical schematic CSDX-3(4,6,7,8,9) (for model YSZ-0.5 and above)

Tests carried out

Performance Tests:

- Yangtze Mid-searches Water Environmental Monitoring Center, CHINA, Report No. 009WATERTEST38, dated September 15, 2009, for 15 ppm Bilge Water Separator, Model YSZ-0.1.
- Yangtze Mid-searches Water Environmental Monitoring Center, CHINA, Report No. 2009WATERTEST39, dated September 15, 2009, for 15 ppm Bilge Water Separator, Model YSZ-5.
- Function Test of 15ppm Bilge Water Separator Control Box CSDX-7 (SN 620009), dated 11 May 2020.

Environmental Tests: Environment

- Wuhan Environment and Reliability Test Center for Mechanical and Electrical Productors of China Shipbuilding Industrial Corporation, Test Report, Electric Control Box of 15ppm Bilge Water Separator, CSDX-7, 620009; report no. CHKS2020-0198, dated 5 June 2020.

Marking of product

The marking shall give the following information: -

- Identification of manufacturer.
- Equipment type designation or model identification.
- Maximum throughput and maximum influent pressure at which the separator is designed to operate.
- Serial number.
- Revision information, as applicable, for all firmware or software modules installed per hardware unit, necessary to identify the equipment.

APPENDIX – YSZ-0.1

Test data and results of tests conducted on a 15 ppm Bilge Separator
in accordance with Part 1 of the Annex to the Guidelines and Specifications contained in IMO Resolution MEPC.107(49)

15 ppm Bilge Separator submitted by: .....

Tested type: .....

Test location: .....

Date: .....

Organisation conducting the test: .....

Method of sample analysis: .....

Test rig according to drawing: .....

Samples analysed by: .....

Environmental testing of the electrical and electronic sections of the 15 ppm Bilge Separator has been carried out in accordance with part 3 of the annex to the guidelines and specifications contained in IMO Resolution MEPC.107(49). The equipment functioned satisfactorily on completion of each test specified on the environmental test protocol.

Environmental test carried out at Test report No: , issued at

Manufacturer's recommendations and information concerning the use of cleansing agents:

Test fluid "A"

Density at 15 °C: .....

Viscosity at 100 °C: .....

Flashpoint: .....

Ash content: .....

Water content at start of test: .....

Test fluid "B"

Density at 15 °C: .....

Viscosity at 40 °C: .....

Flashpoint: .....

Ash content: .....

Water content at start of test: .....

Test fluid "C"

Surfactant: .....

Iron Oxides: .....

Test water

Density at 20 °C: .....

Solid matter present: .....

Test temperature

Ambient: .....

Test fluid "A": .....

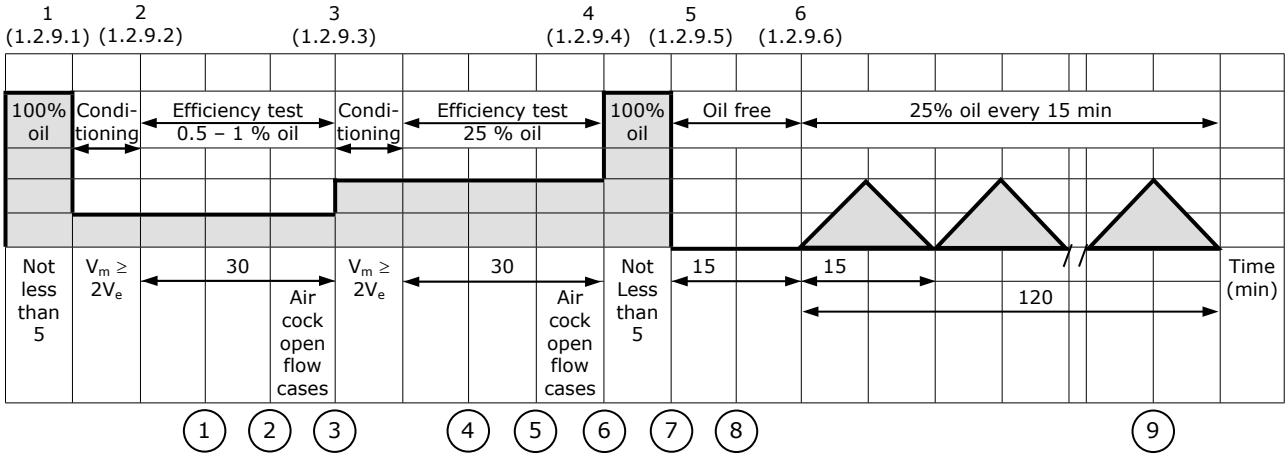
Test fluid "B": .....

Test fluid "C": .....

Test water: .....

TEST RESULTS AND TEST PROCEDURES

TEST FLUID "A"

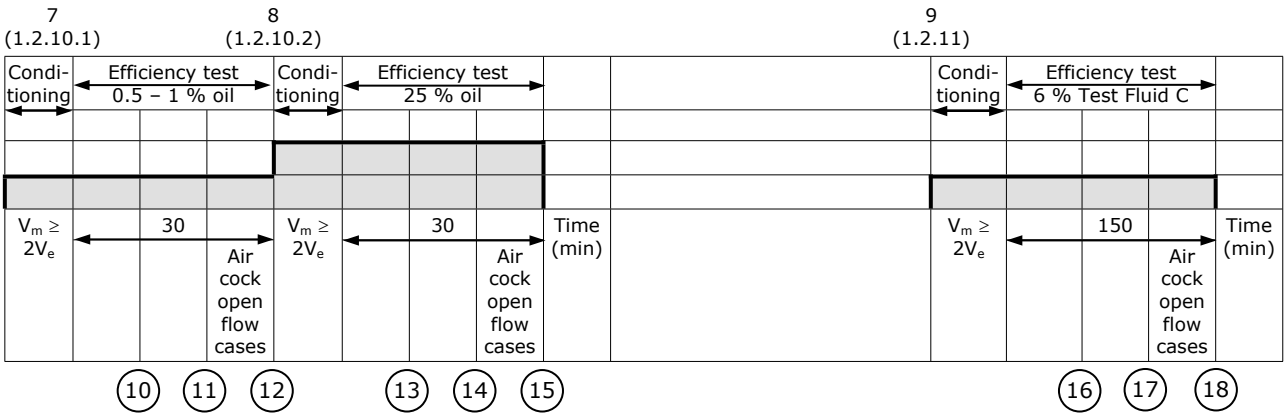


Test sample 9 (taken at the end of auto test, paragraph 1.2.9.6 Annex to resolution MEPC.107(49))

	1	2	3	4	5	6	7	8	9
Influent (%)									
Effluent (ppm)									

TEST FLUID "B"

TEST FLUID "C"



	10	11	12	13	14	15	16	17	18
Influent (%)									
Effluent (ppm)									

V_e - volume of oily water separator (OWS)
V_m - oil/water mixture passed through OWS

APPENDIX – YSZ-5

Test data and results of tests conducted on a 15 ppm Bilge Separator
in accordance with Part 1 of the Annex to the Guidelines and Specifications contained in IMO Resolution MEPC.107(49)

15 ppm Bilge Separator submitted by: .....

Tested type: .....

Test location: .....

Date: .....

Organisation conducting the test: .....

Method of sample analysis: .....

Test rig according to drawing: .....

Samples analysed by: .....

Environmental testing of the electrical and electronic sections of the 15 ppm Bilge Separator has been carried out in accordance with part 3 of the annex to the guidelines and specifications contained in IMO Resolution MEPC.107(49). The equipment functioned satisfactorily on completion of each test specified on the environmental test protocol.

Environmental test carried out at Test report No:issued at

Manufacturer's recommendations and information concerning the use of cleansing agents:

Test fluid "A"

Density at 15 °C: .....

Viscosity at 100 °C: .....

Flashpoint: .....

Ash content: .....

Water content at start of test: .....

Test fluid "B"

Density at 15 °C: .....

Viscosity at 40 °C: .....

Flashpoint: .....

Ash content: .....

Water content at start of test: .....

Test fluid "C"

Surfactant: .....

Iron Oxides: .....

Test water

Density at 20 °C: .....

Solid matter present: .....

Test temperature

Ambient: .....

Test fluid "A": .....

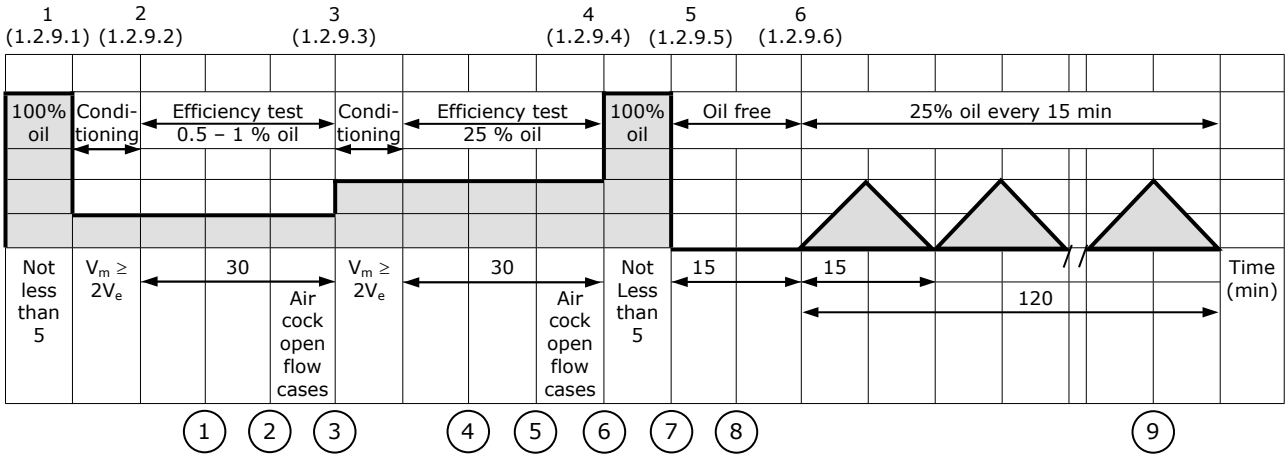
Test fluid "B": .....

Test fluid "C": .....

Test water: .....

TEST RESULTS AND TEST PROCEDURES

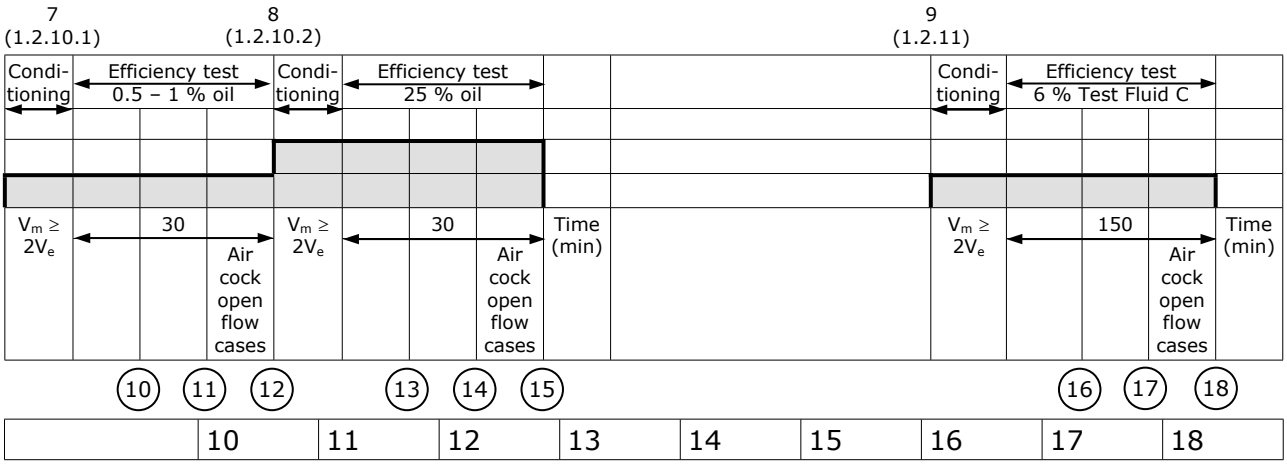
TEST FLUID "A"



Test sample 9 (taken at the end of auto test, paragraph 1.2.9.6 Annex to resolution MEPC.107(49))

Influent (%)									
Effluent (ppm)									

TEST FLUID "B" TEST FLUID "C"



10	11	12	13	14	15	16	17	18

Influent (%)									
Effluent (ppm)									

V_e - volume of oily water separator (OWS)
V_m - oil/water mixture passed through OWS