

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-content meters

with type designation(s)
15 ppm Bilge Alarm Type FOCAS-1800

Issued to

Fellow Kogyo Co., Ltd.
Tokyo, Japan

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2019/1397**,
item No. **MED/2.3. Marpol 73/78 as amended, Annex I Regulation 14, IMO Res. MEPC.107(49), IMO MEPC.1/Circ. 643**
Manufacturers authorised representative
SEACOTEC GmbH & Co. KG
Hamburg, Germany

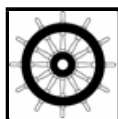
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-03-12**.

Issued at **Høvik** on **2020-03-13**

DNV GL local station:
Yokohama

Approval Engineer:
Wenjun Wu



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

The equipment is intended for installation onboard ships for monitoring oil content concentration in bilge water at maximum 15 ppm when discharged overboard.

The 15 ppm Bilge Alarm is designed and tested to meet the requirements of the IMO Resolution MEPC.107(49). The 15 ppm Bilge Alarm is acceptable for use in accordance with regulation 14(7).

Application/Limitation

Specifications of FOCAS-1800 15ppm Bilge Alarm:

Measurement range	0 to 30 ppm
Measurement precision	±5 ppm (at measuring concentration of 15 ppm)
Working Pressure:	0.02 to 0.6 MPa
Sample water flowrate	0.0002 to 0.003 m ³ /min
Sample water temperature:	2 – 45 °C
Working temperature:	0 – 50 °C, with 5% – 90% RH, no dewing
Power Supply:	AC 85 to 264V, 50 to 60 Hz
Inclination Range:	0 to 22.5 degrees

The following shall be verified during installation:

1. The alarm is always activated whenever clean water is used for cleaning or zeroing purposes;
2. The alarm is always activated whenever no flow of sample through the oil-content meter is detected by the flow sensor;
3. Any alarm will activate the Automatic Stopping Device and lead to recirculation;
4. The overall response time (including the response time of the alarm) between an effluent discharge exceeding 5 ppm oil and to the Automatic Stopping Device preventing the overboard discharge is less than 20 s;
5. By-passing the alarm during normal operation shall by no means be possible;
6. Every access of the alarm (beyond check on instrument drift, repeatability of the instrument reading, and the ability to re-zero the instrument) requires the breaking of a seal.

Limitations

- Installation of the equipment in spaces subject to explosion hazard is not permitted.
- A copy of the Operation, installation and maintenance manual shall be on board vessel at all times.

Type examination documentation

General drawings/documents:

<i>Dwg. No.</i>	<i>Date/Rev.</i>	<i>Title</i>
8821-51	04.11.05	Dimensions View, Bilge Alarm FOCAS-1800
8831-51	06.03.31	External Dimension Drawing
8831-52	06.03.31	External Dimension Drawing (Product with Washing Unit)
8834-51	04.12.21	Inside View
8833-51	04.11.05	Detecting element View
8833-52	04.11.05	Detecting element View w/ automatic washer
8839-51	04.11.05	Electric System Figure

General system document:

Job Id: **344.1-002481-5**
Certificate No: **MEDB00006AN**

- Operation Manual – Bilge Alarm FOCAS-1800

Tests carried out

Performance tests

- Certificate of Type Approval for 15 ppm Bilge Alarm FOCAS 1800, issued by Maritime Bureau – Ministry of Land, Infrastructure and Transport, Tokyo, Japan, 3 March 2005.

Environmental tests

- Research Institute of Marine Engineering, Report No. 04-464(E), dated February 1, 2005, Test Report on Environmental Test, FOCAS 1800.
- Fellow Kogyo Co., Ltd., Records of testing method and performance, dated February 14, 2005, 15 ppm Bilge Alarm, type FOCAS-1800; attested by DNV surveyor.
- IPS Corporation, Test Report about Electromagnetic Compatibility, 15ppm Bilge Alarm FOCAS - 1800, Report No. EMC05208, dated 2005-02-22.

Marking of product

The marking shall give the following information:

- Identification of manufacturer
- Equipment type designation or model identification
- Serial number
- Revision information, as applicable, for all firmware or software modules installed per hardware unit, necessary to identify the equipment

A copy of this Certificate should be carried aboard a vessel fitted with this 15ppm Bilge Alarm at all times.

APPENDIX – Performance test results

Test data and results of tests conducted on the 15ppm Bilge Alarm in accordance with Part 2 of the Annex to the Guidelines and Specifications contained in IMO Resolution MEPC.107(49)

15 ppm Bilge Alarm submitted by:	FELLOW KOGYO Co., Ltd, JAPAN
Tested type:	FOCAS-1800
Test location:	6-38-1, Shinkawa, Mitaka-city, Tokyo 181-0004, JAPAN
Date:	14th-17th February 2005
Organisation conducting the test:	FELLOW KOGYO Co., Ltd (witnessed by DNV and Ministry of Land, Infrastructure and Transport of JAPAN)
Method of sample analysis:	ISO9377-2:2000, Water quality – Determination of hydrocarbon oil index – Part 2, Method using solvent extraction and gas chromatography
Samples analysed by:	National Maritime Research Institute
Test rig according to drawing:	According to IMO Resolution MEPC.107(49)

Environmental testing of the electrical and electronic sections of the 15ppm Bilge Alarm 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 tests carried out at **Research Institute of Marine Engineering, 1-5-12 Fujimicho, Higashimurayama, Tokyo 189-0024, Japan**, Test report No: **04-464(E)**, issued on **1st February 2005**; and at **IPS Corporation, 1878-1 Harumiya Ono Tatsuno-machi, Kamiina-gun, Nagano-ken, 399-0601, Japan**, Test report No: **EMC05208**, issued on **2005-02-22**.

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

CALIBRATION TEST AND RESPONSE TIME

Test Fluid	A		B		C	
	Measured	Grab sample	Measured	Grab sample	Measured	Grab sample
0 ppm	0	0.1	0	0	0	0.2
15 ppm	10	15.1	15	11.8	18	13.4
Full scale (30 ppm)	27	25.6	26	25.3	30	26.6
Water Temperature	10 °C		10 °C		10 °C	
Re-zero	Yes		Yes		Yes	
Recalibrate	No		No		No	
Response Time	4.23 sec		4.70 sec		3.58 sec	

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CONTAMINANT(S) AND COLOUR TEST		Non-oil particulate matter Meter reading shift with ppm non-oil particulate contaminants and with very salt water
		Oil Content Meter Reading
Clean water and 10 ppm Test Fluid "B"		6 ppm
Very salt water		6 ppm
Iron Oxide	10 ppm	9 ppm
Iron Oxide	50 ppm	7 ppm
Iron Oxide	100 ppm	10 ppm

SAMPLE PRESSURE OR FLOW TEST

15 ppm Bilge Alarm reading shift at 50% of normal
15 ppm Bilge Alarm reading shift at 200% of normal
Deviations from this test should be stated if necessary

17 ppm

17 ppm

SHUT OFF TEST

15 ppm Bilge Alarm reading before shut-off
15 ppm Bilge Alarm reading after start-up (minimum dry
period 8 hours)

16 ppm

16 ppm

Damage to 15 ppm Bilge Alarm as follows:

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UTILITIES SUPPLY VARIATION TEST

110% voltage effects (240V)
90% voltage effects (90V)
110% air pressure effects
90% air pressure effects
110% hydraulic pressure effects
90% hydraulic pressure effects

17 ppm

17 ppm

OTHER COMMENTS

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CALIBRATION AND ZERO DRIFT TEST

Calibration drift	14 ppm
Zero drift	18 ppm