



CERTIFICATE NUMBER 22-2309086-PDA
EFFECTIVE DATE 13-October-2022
EXPIRATION DATE 12-October-2027
ABS TECHNICAL OFFICE Singapore Engineering Services

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

ENDRESS + HAUSER CONDUCTA GMBH + CO. KG

located at

DIESELSTR. 24, D-70839 GERLINGEN, Germany

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product Sensor

Model CFS51

This Product Design Assessment (PDA) Certificate remains valid until 12-October-2027 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Vibin Chandrabose, Senior Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement

ENDRESS + HAUSER CONDUCTA GMBH + CO. KG

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Web: www.conducta.endress.com

Tier: 2 - PDA Issued

Product: **Sensor**

Model: **CFS51**

Endorsements:

Intended Service:

Sensor for Liquid Analysis on ABS classed vessels

Description:

Fluorescence based sensor for PAH measurements.

The device stimulates the PAHs with UV light and detects the fluorescent radiation emitted by the PAHs as a result. The PAH concentration is measured in units of phenanthrene equivalents (PAHphe).

Rating:

Process Temperature range:

· -5 to 55°C

Ambient Temperature:

· Sensor: -20 to 60°C

· Solid state reference: -5 to 60°C, without condensation

Degree of protection: IP 68 / NEMA 6P

Power requirement: 24VDC, powered by CM44x

Measured variable:

· PAH concentration in phenanthrene equivalents PAHphe

· Temperature

Measuring range: 0 to 5000 g/l PAHphe

Long-term reliability: < 5%

Service Restriction:

1. Unit certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

2. Not intended to be used in hazardous area.

Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2. Each particular application and installation is to be specifically approved in conjunction with the relevant system, locations and environmental conditions.

Notes/Drawing/Documentation:

Phoenix Testlab Report No. E220601E1, EMC Test Report dated 08-06-2022, Revision: 0, Pages: 24

Phoenix Testlab Report No. U220601E1, Environmental Test Report dated 22-07-2022, Revision: 0, Pages: 73

Drawing No. CFS51 Product Information, general information, Revision: 0, Pages: 9

Drawing No. CFS51_TR_Approval_Test_YPS-1898_Pressure-Test_EN, Pressure Test Report, Revision: 0, Pages: 11

Drawing No. TI01630CEN_0222_CFS51_Data_Sheet_CFS_51, Revision: 0, Pages: 12

Drawing No. Vollmacht PTL_Rom, Revised Power of Attorney, Revision: 1, Pages: 1

Drawing No. Übersicht Marinezulassungen Sensoren 2022 V01, Overview of Tests and Product, Revision: 01, Pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

2022 Rules for Conditions of Classification 1-1-4/7.7, 1-1-A3 and A4, which covers the following:

2022 Rules for Building and Classing Marine Vessel Rules: 4-8-3/1.7, 4-8-3/1.11.1, 4-8-3/1.17, 4-9-9/7, 4-9-9/13.1

2022 Rules for Conditions of Classification - Offshore Units and Structures 1-1-4/9.7, 1-1-A2 and A3, which covers the following:

2022 Rules for Building and Classing Mobile Offshore Unit Rules: 4-3-1/11, 4-3-1/15, 4-3-1/17.1

2022 Rules for Conditions of Classification - Light and High Speed Craft 1-1-4/11.9, 1-1-A2 and A3, which covers the following:

2022 Rules for Building and Classing High Speed Craft Rules: 4-6-1/11, 4-6-1/15, 4-6-1/17.1, 4-7-9/7, 4-7-9/15.1

National:

NA

International:

Resolution MEPC.259(68): 2015 Guidelines for Exhaust Gas Cleaning Systems, Section 10.2.3 "Washwater Monitoring – PAH"

Resolution MEPC.340(77): 2021 Guidelines for Exhaust Gas Cleaning Systems, Section 10.2.4 "Discharge water monitoring – PAH"

Government:

NA

EUMED:

NA

OTHERS:

NA