

DANFOSS A/S
NORDBORGVEJ 81
NORDBORG
DK-6430
Denmark
Telephone: 45-7488-2222
Fax: 45-74 88 40 00
Email: flemming_boss@danfoss.com
Web: www.danfoss.com



MA Certificate No. 09-EG 1751249

Product: Pressure Transmitter
Model: MBS 2100/2150, MBS 3100/3150, MBS 3300/3350

Intended Service:
Marine, offshore, industrial

Description:
MBS 3100 and MBS 3150 are compact pressure transmitters designed with integrated pulse-snubber suitable for use in severe medium influences like cavitation, liquid hammer or pressure peaks.

MBS2100/MBS2150 and MBS3300/MBS3350 are compact high temperature pressure transmitters with flexible pressure transmitter program covering different output signals, absolute and gauge (relative) versions, and wide range of pressure and electrical connections.

Ratings:
Pressure Range: 0-600 Bar; Power Supply: 10 VDC to 32 VDC; Output Signal: 4-20 mA; Protection: IP65/IP67; Shock Resistance: 500 g/1 ms; Operation Temperature: -40 degrees to 125 degrees C; Vibration Stability: 20g Sinusoidal, 7.5 gr random

Service Restrictions:
Unit Certification is not required for this product. Each specific arrangement is to be approved.

Comments:
Not Applicable

Notes / Drawings / Documentation:
-This product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the product.

-vibrations, heat and cold test, report No. 201000978 performed by Danfoss.

Term of Validity:
This Product Design Assessment (PDA) Certificate 05-LD483624C-3-PDA, dated 08/Feb/2013 remains valid until 07/Feb/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:
The manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The rules applicable to this assessment are: 2013 Steel Vessel Rules 1-1-4/7.7, 4-8-3/1.7 and 4-9-7/13.1

National:
NA



CERTIFICATE NUMBER

05-LD483624C-3-PDA

DATE

08 February 2013

ABS TECHNICAL OFFICE

London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
DANFOSS A/S - NORDBORG

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: **Pressure Transmitter**

MODEL: **MBS 2100/2150, MBS 3100/3150, MBS 3300/3350**

This Product Design Assessment (PDA) Certificate 05-LD483624C-3-PDA, dated 08/Feb/2013 remains valid until 07/Feb/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Jean-Claude G. Dennemont
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 the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).



**DANFOSS A/S
NORDBORGVEJ 81,
NORDBORG,
Denmark,
DK-6430**

**Reference: RA/JGD/998648
Project Number: 2632977
Class Number:**

ATTN : Mr. F. Boss flemming_boss@danfoss.com

Shipyard, Hull Numbers:

**Review Activity: Type Approval Design Assessment (PDA) - Renewal MBS2100/2150;
MBS 3100/3150; MBS 3300/3350.**

We have received your declaration stating that the materials in the requested assessment are free from Asbestos and your application for ABS Type Approval dated 16th November 2012 and are pleased to advise that we have completed the Product Design Assessment (PDA) phase of the type approval process. Enclosed is your original copy of the PDA. Your details are published on our web site at www.typeapproval.org and can also be downloaded there.

Please be sure that you understand the scope and conditions of the validity of the certificate. An assessment is not an approval. As applicable, the PDA is a generic assessment of materials, components, products or systems for a specific use in compliance with the Rules, Guides and recognized standards. In essence the final approval is given when an Engineer or Surveyor accepts it for a specific user and installation. Therefore, the PDAs are written assuming that the end user and installation of the product is unknown, and that the manufacturer may not apply for Manufacturing Assessment.

This Product Design Assessment (PDA) is intended for products to be used on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product. The use of the product in a non ABS classed vessel, MODU or facility is to be mutually agreed between your company and your client

We recommend that you monitor the ABS Rules, Guides and other standards used in the approval. These Rules, Guides and standards often change on an annual basis, and you must comply with the new Rules, Guides and standards in order for the product to be used on an ABS classed vessel or facility contracted under the new Rules, Guides or specifications.

We do caution you that the use of the ABS logo is copyrighted. However, our "Design Assessed" logo may be used as long as your PDA remains valid. A copy of the artwork for the logo may be requested from our email address absta-programs@eagle.org

Our "Product Type Approval" Logo may be used as long as you are conducting regular audits of your manufacturing process. Since you also have a valid certificate of Manufacturing Assessment, we will endorse this product as Type Approved.

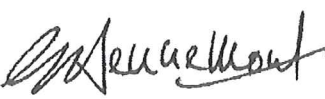


One (1) copy of the drawings appropriately stamped to indicate our reviews are being returned.

Please find enclosed our invoice to cover the cost of the design assessment phase of the type approval process.

We appreciate your confidence in ABS type Approval. If you should have any comments relative to the scope and conditions of the assessment of your product, or if we can be of any further assistance, please do not hesitate to contact us.

Very truly yours,
Dimitrios G. Kostaras
Vice President of Engineering
ABS Europe Division

By: 
Jean-Claude Dennemont
Managing Principal Engineer
Ship Engineering Department

Encs: PDA Certificate

ABS EUROPE LTD.

No. 1 FRYING PAN ALLEY, LONDON, ENGLAND, E1 7HR

TEL: 44-20-7247-3255 FAX: 44-20-7247-3053 Email: abs-eur@eagle.org

www.eagle.org