



CERTIFICATE NUMBER	20-LD1960092-PDA
EFFECTIVE DATE	18-Mar-2020
EXPIRY DATE	17-Mar-2025
ABS TECHNICAL OFFICE	London Engineering Department

CERTIFICATE OF Product Design Assessment

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

DANFOSS A/S

located at

**NORDBORGVEJ 81 - BUILDING E14 S4A, APPROVALS DEPT.,
NORDBORG, Denmark, DK-6430**

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 Control

**Model Heavy Duty Pressure Switch, Type MBC 5100
Differential Pressure Switch, Type MBC 5180**

This Product Design Assessment (PDA) Certificate remains valid until 17/Mar/2025 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

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 (2010)

DANFOSS A/S

NORDBORGVEJ 81 - BUILDING E14 S4A

APPROVALS DEPT.

NORDBORG

Denmark DK-6430

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Tier: 3 - Type Approved, unit certification not required

Product: Pressure Control
Model: Heavy Duty Pressure Switch, Type MBC 5100
Differential Pressure Switch, Type MBC 5180

Intended Service:

For use on ABS Classed Vessels and Offshore Installations in accordance with the listed ABS Rules.

Description:

MBC 5100 pressure controls for use in control, alarm and monitoring applications, provided in the following versions: Diaphragm Type (if pressure peaks and pulsations occur in the system), Bellows Type (if low differential is needed), and Piston Type for high pressure up to 400 bar

Rating:

Heavy Duty Pressure Switch, Type MBC 5100

Low Pressure Bellows - Permissible Operating Pressure 15 Bar, Minimum Burst Pressure 30 Bar;
High Pressure Bellows - Permissible Operating Pressure 45 Bar, Minimum Burst Pressure 90 Bar;
Diaphragm - Permissible Operating Pressure 150 Bar, Minimum Burst Pressure 300 Bar;
High Pressure Piston-Permissible Operating Pressure 600 Bar, Minimum Burst Pressure 1200 Bar;
Switch:Contact Load; Microswitch: AC 15, 0.5A 250V. DC 13, 12W 125V
Operation Temperatures: -10 to 85 degrees C for versions with Diaphragm, -40 to 85 degrees C for versions with Bellows; -40 to 85 degrees C for version with Piston;
Transport Temperature: -50 to 85 degrees C for version with Bellows and Diaphragm; -40 to 85 degrees C for version with Piston
Enclosure: IP 65. Vibration Stability: Sinusoidal - 20 g / 25 -2 kHz; for Piston type 4.4 g, 25-200Hz

Differential Pressure Switch, Type MBC 5180

Permissible Operating Pressure: 45 bar;
Operating Temperature : -10 Deg C to 85 Deg C;
Enclosure.: IP 65;
Switch.: SPDT ;
Switch:Contact Load: AC15, 0.5A, 250V, DC13, 12W,125V;

Service Restriction:

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.

Comments:

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

Notes/Drawing/Documentation:

Drawing No. IC.PD.P10.4A.02, Heavey duty pressure switch MBC 5100, Revision: n/a, Pages: 6
Drawing No. IC.PD.P10.K5.02, Differential pressure switch MBC 5180, Revision: n/a, Pages: 5
Drawing No. PDA Application Form - Revalidation 15-LD1322076-PDA, PDA Application Form - Revalidation 15-LD1322076-PDA, Revision: -, Pages: 3
Drawing No. PDA Application Form - Revalidation 15-LD1342938-PDA, PDA Application Form - Revalidation 15-LD1342938-PDA, Revision: -, Pages: 3

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Terms of Validity:

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STANDARDS

ABS Rules:

- Marine Vessels Rules (2020): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-1-1/3.3, 4-8-3/1.7, 4-8-3/1.11, 4-9-9/7, 4-9-9/13, 4-9-9/15.7 Table 1, Table 2
- Mobile Offshore Units Rules (2020): 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-3-1/11, 4-3-1/15, 6-1-1/9, 6-1-1/13;
- Facilities on Offshore Installations Rules (2020): 1-1-4/9.7, 1-1-A2, 1-1-A3
- Steel Vessels for Service on Rivers and Intracoastal Waterways Rules (2020): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-5-1/13, 4-5-1/17;
- Bulk Carriers for Service on the Great Lakes (2020): 1-1-4/7.7, 1-1-A3, 1-1-A4;
- Steel Barge Rules (2020): 1-1-4/7.7, 1-1-A3, 1-1-A4;
- High-Speed Crafts Rules (2020): 1-1-4/11.9, 1-1-A2, 1-1-A3, 4-7-9/15.5 Table 9;

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA