



Lloyd's
Register

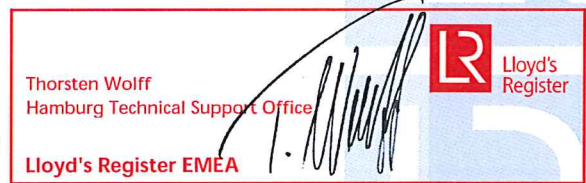
Type Approval Certificate Extension

This is to certify that Certificate No. 99/70087(E3) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	Danfoss A/S DK-6430 Nordborg Denmark
PLACE OF PRODUCTION	Danfoss A/S DK-6430 Nordborg Denmark
	Danfoss (Tianjin) No. 9 Quanhui Road, Wuqing Area Tianjin P.R.C 301700 Tianjin China
DESCRIPTION	Pressure Transmitters
TYPES	MBS 2100 standard MBS 3100 standard MBS 3300 standard MBS 2150 with integrated puls-snubber MBS 3150 with integrated puls-snubber MBS 3350 with integrated puls-snubber MBS 3350 cable version (screened cable, marine approved) MBS 9300 Low press pressure transmitter - bidirectional

Certificate No.	15/20047
Issue Date	04 June 2015
Expiry Date	22 September 2019
Sheet	1 of 2



Thorsten Wolff
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register EMEA
Is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



Lloyd's
Register

APPLICATION	Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 (except type MBS 9300) as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2002.		
ADDITIONAL TESTS	Low Temperature:	-40°C	
	Degree of protection:	Plug type	IP65
		Flying lead type-	IP 67
DESIGN CODE	Manufacturer's specification		

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The attached Design Appraisal Document No. HTS/ETS 31797-15 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 99/70087(E3) to which this extension should be attached.

Certificate No.	15/20047
Issue Date	04 June 2015
Expiry Date	22 September 2019
Sheet	2 of 2

Thorsten Wolff
Hamburg Technical Support Office

Lloyd's Register EMEA

LR031.1.2013.12

Thorsten Wolff
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register EMEA
is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



Marine Design Appraisal Document

Lloyd's Register EMEA
Hamburg Technical Support Office
Am Sandtorkai 41
20457 Hamburg
Telephone +49 (0)40 328107 - 0 Fax +49 (0)40 328107 - 480
E-mail: hamburg-technical-support@lr.org

Date
04 June 2015

Please quote this reference number on all future communications
HPC1562095/31797-15/TW/ND/SC

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2002
ISSUED TO: DANFOSS A/S
FOR: PRESSURE TRANSMITTERS
TYPE APPROVAL CERTIFICATE EXTENSION NO. 15/20047**

The (additional) undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

ADDITIONAL APPROVAL DOCUMENTATION

HPC1562095	Production Quality Assessment Form
198467	ISO/TS 16949:2008 Bureau Veritas
520B6066	Data sheet Pressure transmitter
EPD116223A	Data sheet TE Cable
141022-11	Engineering sheet Wärtsilä

29.01.2015
10.12.2014
02.2014
28.04.2014
22.10.2014

TEST REPORTS

T208747_1	IPX7 test and temperature cycling of MBS3350 Delta
T208747_2	IPX7 test and temperature cycling of MBS3350 Delta
T208750	Environmental test Delta

19.01.2015
19.01.2015
08.01.2015

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

Lloyd's Register EMEA
Is a member of Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

Lloyd's Register EMEA
Hamburg Technical Support Office
Am Sandtorkai 41
20457 Hamburg
Telephone +49 (0)40 328107 - 0 Fax +49 (0)40 328107 - 480
E-mail: hamburg-technical-support@lr.org

Date
04 June 2015

Please quote this reference number on all future communications
HPC1562095/31797-15/TW/ND/SC

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

Thorsten Wolff
Hamburg Technical Support Office



Lloyd's Register
Lloyd's Register EMEA

LR031.1.2013.12
Thorsten Wolff
Senior Specialist
Electrotechnical Systems
Hamburg Technical Support Office
Lloyd's Register EMEA
T +49 (0)40 328107-445
E thorsten.wolff@lr.org

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

Lloyd's Register EMEA
Is a member of Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

**Part 3
Transmitters/Transducers (Part 3)**

Producer/Licence No.	Item Description	Technical Details	Category/ Additional Tests	Remarks	Cert. No.
<p>Danfoss A/S, DK-6430 Nordborg, Denmark.</p>	<p>Pressure Transmitters Types: MBS9300 MBS2100 standard/ MBS2150 with puls-snapper MBS3100 standard/ MBS3150 with puls-snapper MBS3300 standard/ MBS3350 with puls-snapper MBS3350 cable version (screened cable, marine approved)</p>	<p><u>MBS9300:</u> Power supply Un: 9-32VDC Elect conn: Pg9 plug Press range -70mbar-70 mbar bidirectional</p> <p><u>MBS2100/2150:</u> Power Supply Un: 5VDC Elect. conn: plug or flying lead Press range: -1-1.5 to 0-600 bar</p> <p><u>MBS3100/MBS3150:</u> Power supply Un: 12.5-32VDC</p> <p>Elect. conn: plug; Pg11, Pg9 or Pg13.5 Press ranges: 0-1 bar to 0-600 bar</p> <p><u>MBS3300/MBS3350/MBS3350 cable version:</u> Power supply Un: 15-30VDC/9-34VDC Elect conn: Pg plug or flying lead or Screened cable Press ranges: -1- 1.5 to 0- 600 bar</p>	<p>ENV1 ENV2 ENV3 ENV4 (except type MBS 9300) (2002)</p>	<p>Expires: 22 September 2019</p>	<p>15/20047</p>
		<p>Elect. conn: plug; Pg11, Pg9 or Pg13.5 Press ranges: 0-1 bar to 0-600 bar</p> <p><u>MBS3300/MBS3350/MBS3350 cable version:</u> Power supply Un: 15-30VDC/9-34VDC Elect conn: Pg plug or flying lead or Screened cable Press ranges: -1- 1.5 to 0- 600 bar</p>	<p>Low Temperature: -40°C Degree of protection: Plug type - IP65 Flying lead type - IP67</p>		
		<p>Battery supplied: voltage limited to 20-23VDC (MBS3300) voltage limited to 12.0-26 VDC (MBS3350) Output signal: 4-20mA; 0-5V/1-5V/1-6V/ 0-10V or ratio-metric 10-90% of supply voltage.</p> <p>Medium temperature max 125°C. Temperature compensated (MBS3300/3350, 4-20mA to 100°C.)</p>			