



CERTIFICATE NUMBER 18-LD1737791-PDA
EFFECTIVE DATE 05-Jun-2018
EXPIRATION DATE 04-Jun-2023
ABS TECHNICAL OFFICE London

CERTIFICATE OF Product Design Assessment

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

TWENTSCHE KABELFABRIEK BV

located at

POSTBUS 6, HAAKSBERGEN, Netherlands, 7480 AA

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 Cable, Propulsion or Propulsion Control

Model CS 90 MBZH MarineLine YZp, YOZp and YOZp EMC, MarineLine+ YZp, YOZp and YOZp EMC, MarineFlex YZp, YOZp and YOZp EMC

This Product Design Assessment (PDA) Certificate remains valid until 04-Jun-2023 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

Theodoros Chatzigkaidas, 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 (2010)

TWENTSCHE KABELFABRIEK BV

POSTBUS 6

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Tier: 5 - Unit Certification Required TC

Product: Cable, Propulsion or Propulsion Control

Model: CS 90 MBZH MarineLine YZp, YOZp and YOZp EMC, MarineLine+ YZp, YOZp and YOZp EMC, MarineFlex YZp, YOZp and YOZp EMC

Intended Service:

Fixed cabling for installing on ABS classed vessels and offshore facilities in accordance with the listed ABS Rules and International Standards.

Description:

Flame retardant, halogen free power cable, XLPE insulated, halogen free thermoplastic SHF1 sheathed overall. Type YOZp is copper braided, Type YOZp EMC incorporates Cu/Pet tape under braiding. MarineLine+ and MarineFlex have halogen free filler.

Rating:

Rated voltage 600/1000V

Max continuous conductor temperature: 90 Deg. C

Service Restriction:

Unit Certification is required for this product. All propulsion cables, other than internal wiring in control gears and switchboards are to be subjected to Dielectric and Insulation Tests at the Plant of Manufacture and on board in the presence of the Surveyor.

Refer to:

- 4-1-1/Table 3 (item 21) and 4-8-5/5.17.11 (e) of the ABS Steel Vessels Rules 2018,
- 4-6-5/3.17.11 (e) of the ABS Steel Vessels under 90 Meters in Length Rules 2018,
- 4-8-5/5.17.11 (e) of the ABS Offshore Support Vessels Rules 2018,
- 4-5-5/5.17.11 (e) of the ABS Steel Vessels for Service on Rivers and Intracoastal Waterways Rules 2018, and
- 4-6-5/3.17.11 (e) of the ABS High Speed Crafts Rules 2018.

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.
- Records of test are to be maintained and are to be available to ABS upon request.

Notes/Drawing/Documentation:

Drawing No. 20171113 Declaration of conformity Marine, Revision: 0, Date: 08.11.2017, Page: 01

Drawing No. R&D-TS-0008, Test Specification LV Cable, Revision: 7, Date: 08.01.2018, Page: 03

Drawing No. MarineLine(+)_FLex YZp YOZp (EMC) 0,6_1kV , Data Sheets, Revision: 0, Date: 16.05.2018, Pages: 27

Drawing No. RD60093-1, TKF test report, Revision: 0, Date: 06.09.2017, Pages: 19

Drawing No. 288698-1, BRE Global Test Report -TKF MarineLine, Revision: 0, Date: 03.10.2013, Page: 7

Drawing No. 288698-2, BRE Global Test Report - TKF MarineLine, Revision: 0, Date: 03.10.2013, Page: 7

Drawing No. 288698-3, BRE Global Test Report - TKF MarineFlex, Revision: 0, Date: 03.10.2013, Page: 7

Drawing No. P109452-1001 BRE Global Test Report – TKF cable, Revision: 3, Date: 01.05.2018, Page: 26

Terms of Validity:

This Product Design Assessment (PDA) Certificate 18-LD1737791-PDA, dated 05/Jun/2018 remains valid until 04/Jun/2023 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.

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POSTBUS 6

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Tier: 5 - Unit Certification Required

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:

- Steel Vessel Rules (2018): 1-1-4/7.7, 1-1-A3&A4; 4-8-3/9.1, 4-8-3/9.5, 4-8-3/9.7, 4-8-3/9.9, 4-8-3/9.17, 4-8-5/5.17.11;
- Steel Vessels Under 90 Meters (295 Feet) in Length (2018): 1-1-4/7.7, 1-1-A3&A4, 4-6-4/13.1.1, 4-6-4/13.1.2, 4-6-4/13.1.3, 4-6-4/13.1.4, 4-6-4/Table 9, 4-6-5/3.17.11 (e);
- Facilities on Offshore Installations (2018): 1-1-4/9.7, 1-1-A2&A3, 3.6/13.1, 3.6/13.3, 3.6/13.7, 3.6/13.9;
- Offshore Support Vessels (2018): 1-1-4/7.7, 1-1-A3&A4, 4-8-3/1.7, 4-8-3/9.1, 4-8-3/9.5, 4-8-3/9.7, 4-8-3/9.9, 4-8-3/9.17, 4-8-5/5.17.11;
- Mobile Offshore Drilling Units (2018): 1-1-4/9.7, 1-1-A2&A3, 6-1-1/9, 6-1-1/13; 4-1-1/7.9, 4-3-4/7.1.1, 4-3-4/7.1.2, 4-3-4/7.1.4, 4-3-4/Table 1, 6-1-7/17.3.6;
- Steel Vessels for Service on Rivers and Intracoastal Waterways (2018): 1-1-4/7.7, 1-1-A3&A4; 4-5-4/13.1.1, 4-5-4/13.1.2, 4-5-4/13.1.3, 4-5-4/13.1.4, 4-6-4/Table 9, 4-5-5/5.17.11;
- High Speed Crafts (2018): 1-1-4/11.9, 1-1-A2&A3, 4-6-4/13.1.1, 4-6-4/13.1.2, 4-6-4/13.1.3, 4-6-4/13.1.4, 4-6-4/Table 9, 4-6-5/3.17.11 (e);
- Steel Barge Rules (2018): 1-1-4/7.9, 1-1-A3&A4, 4-1-3/9.

National:

NA

International:

IEC 60092-350 Ed4.0:2014,
IEC 60092-353 Ed4.0:2016,
IEC 60092-360 Ed1.0:2014,
IEC 60332-3-22:2000+AMD1:2008,
IEC 60754-1 Ed3.0:2011,
IEC60754-2 Ed3.0:2011,
IEC 60228 Ed3.0: 2004,
IEC 61034-2 Ed3.1: 2005+A1:2013

Government:

NA

EUMED:

NA

OTHERS: TC

NA