



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product. This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 22-FEB-2022. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid 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.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Cable, Flame Retardant Electric Power Cables
Model Name(s): M2XCH VFD

Presented to:

UNTEL KABLOLARI SANAYI VE TICARET ANONIM SIRKETI
MAKINE OSB, 6.CAD. NO: 4 41455
DILOVASI-GEBZE
Turkey

Intended Service:

Power cable for variable frequency drives

Description:

Halogen-free, flame retardant, screened, power cable Conductor: Circular stranded annealed electrolytic copper conductor (class 2 or class 5 and/or tinned on request acc. to IEC 60228), Insulation: XLPE, Filler and/or separator and/or bedding and/or inner sheath: *Filler. *Polyester tape over laid up cores. *Halogen-free compound. *Halogen-free, flame retardant, thermoplastic polyolefin base compound (SHF1 - according to IEC 60092-360) Screen: CU/PETP Tape (100% coverage), Electrolytic copper braided screen (90% coverage density), Outer Sheath: Halogen-free, flame retardant , thermoplastic polyolefin based compound (SHF1 - according to IEC 60092-360)

Tier:

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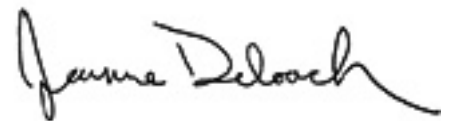
Ratings:

Voltage grade: 0.6/1 kV (1.8/3kV) Maximum operating temperature: 90 deg. C
Lowest ambient temperature for fixed installation: -40 deg. C

Service Restrictions:

Unit Certification is required for propulsion controls, propulsion semiconductors and propulsion cables. 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. 4-1-1/Table 3 (item 21) and 4-8-5/5.17.11 (e) of the ABS Rules for Building and Classing Steel Vessels 2017, 4-6-5/3.17.11 (e) of the ABS Rules for Building and Classing Steel Vessels under 90 Meters in Length 2017, 4-8-5/5.17.11 (e) of the ABS Rules for

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|---------------------------------|--|-------------------|--------------------|
| Comments: | Offshore Support Vessels 2016, 4-5-5/5.17.11 (e) of the ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways 2017 and 4-6-5/3.17.11 (e) of the ABS Rules for High Speed Crafts 2017 refer. 1. The installation of single conductor cables are to be in accordance to 4-8-4/21.7.1 of Steel Vessel Rules 2017. 2. The following cable markings are to be provided in accordance with IEC 60092-353: Indication of origin (manufacturer's name or trade mark) and rated voltage (Uo/ U) and construction (number of cores and cross sectional area of the conductor). 3. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. | | |
| Notes / Documentation: | Drawing No. M2XCH-VFD Data Sheet, 2014-11-TS_31 Revision: 0, Drawing No. M2XCH-VFD Untel Test Report dated 10.08.2016, Revision: 0, Drawing No. M2XCH-VFD Common Tests Specification dated 10.08.2016, Revision: 0 | | |
| Term of Validity: | This Product Design Assessment (PDA) Certificate 17-GD1602614-PDA, dated 23/Feb/2017 remains valid until 22/Feb/2022 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. | | |
| ABS Rules: | Steel Vessel Rules (2017): 1-1-4/7.7, 1-1-A3 & A4, 4-8-3/9.1, 4-8-3/9.3, 4-8-3/9.5, 4-8-3/9.9, 4-8-5/5.17.11 Steel Vessels Under 90 Meters (295 Feet) in Length (2017): 1-1-4/7.7, 1-1-A3 & A4, 4-6-4/13.1.1, 4-6-4/13.1.2, 4-6-4/13.1.4, 4-6-5/3.17.11 Offshore Support Vessels (2017): 1-1-4/7.7, 1-1-A3 & A4, 4-8-3/9.1, 4-8-3/9.3, 4-8-3/9.5, 4-8-3/9.9, 4-8-5/5.17.11 Steel Vessels for Service on Rivers and Intracoastal Waterways (2017): 1-1-4/7.7, 1-1-A3 & A4, 4-5-4/13.1.1, 4-5-4/13.1.2, 4-5-4/13.1.4, 4-5-4/13.1.5, 4-5-5/5.17.11 High-Speed Craft (2017): 1-1-4/11.9, 1-1-A2 & A3, 4-6-4/13.1.1, 4-6-4/13.1.2, 4-6-4/13.1.4, 4-6-4/13.1.5, 4-6-5/3.17.11 Steel Barge Rules (2017): 1-1-4/7.7, 1-1-A3 & A4 | | |
| National Standards: | | | |
| International Standards: | IEC 60228 (2004), IEC 60092-353 (2011), IEC 60092-350 (2014), IEC 60092-360 (2014), IEC 60092-351 (2014), IEC 60332-1 (2004), IEC 61034 (2013), IEC 60754-1 (2011), IEC 60754-2 (2011) | | |
| Government Authority: | | | |
| EUMED: | | | |
| Others: | | | |
| Model Certificate | Model Certificate No | Issue Date | Expiry Date |
| PDA | 17-GD1602614-PDA | 23-FEB-2017 | 22-FEB-2022 |



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.