



## *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 07/NOV/2018. 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 23/FEB/2020 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 High Voltage Power Cables  
**Model Name(s):** TFCI, TFOI, TFOU

**Presented to:**

UNIKA UNIVERSAL KABLO SAN. VE TIC A.S.  
VELIKOY ORGANIZE SANAYI BOLGESI SANAYI MAH. 3.CADDE NO.4 CERKEZKOY  
Turkey

<b>Intended Service:</b>	High voltage power cables for electrical equipment of shipboard, marine and offshore structures
<b>Description:</b>	High voltage, flame retardant and halogen free mud resistant power cables
<b>Tier:</b>	3
<b>Ratings:</b>	According to datasheets: 1-Voltage grade [kV]: 3.6/6, 6/10, 8.7/15, 12/20 2-Maximum temperature [C deg.]: 90 3-Cold resistance [C deg.]: -35 for impact / -40 for bending (abnormal low temperature cable only) 4-Conductor size [mm <sup>2</sup> ]: 10-360 5-Number of cores: 1, 3, 3+E 6-Flammability: IEC 60332-3-22 Cat. A, IEC 60332-1 Explanation of symbols: T: XLPE insulation F: Bedding/inner covering or temping (halogen free) O: Copper wire braid (tinned or bare) C: Galvanized steel wire braid I: SHF1 U: SHF2 or SHF mud
<b>Service Restrictions:</b>	Unit Certification is required for this product when cables are used for propulsion system as per 4-8-5/5.17.12(e) of ABS Rules For Building And Classing Steel Vessels. All propulsion cables, other than internal wiring in control gears and switchboards, are to be subjected to dielectric and insulation tests in the presence of the Surveyor.
<b>Comments:</b>	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The following cable markings are to be provided in accordance with IEC 60092-354: indication of origin (manufacturer's name or trade mark) and rated voltage (U <sub>0</sub> / U) and construction (number of cores pairs triples or

quads and cross sectional area of the conductor).

**Notes / Documentation:**

Drawing No. 01, Test Report 01, Revision: -, Pages: - Drawing No. 02, Test Report 02, Revision: -, Pages: - Drawing No. Cable List, Cable List, Revision: 1, Pages: 1 Drawing No. Cable Test Plan, Cable Test Plan, Revision: 1, Pages: 1 Drawing No. Cable Test Plan Rev 1, Cable Test Plan Rev 1, Revision: 1, Pages: 1 Drawing No. Certification Scope ABS, Certification Scope ABS, Revision: 1, Pages: 1 Drawing No. ISO 9001, ISO 9001, Revision: -, Pages: - Drawing No. List of Selected Cables, List of Selected Cables, Revision: 1, Pages: 1 Drawing No. P19-P21 TFOU, P19-P21 TFOU, Revision: -, Pages: - Drawing No. P4-P11 TFOU, P4-P11 TFOU, Revision: -, Pages: - Drawing No. TDS TFOU, TDS TFOU, Revision: -, Pages: - Drawing No. DS4142111, TFOI Datasheet, Revision: -, Pages: - Drawing No. TFCL, TFCL, Revision: -, Pages: - Drawing No. Test Report 3.2, Test Report 3.2, Revision: 0, Pages: 1 Drawing No. Test Report 3.3, Test Report 3.3, Revision: 0, Pages: 4 Drawing No. Test Reports 1.1-1.3-1.4, Test Reports 1.1-1.3-1.4, Revision: 0, Pages: 3

**Term of Validity:**

This Product Design Assessment (PDA) Certificate 15-GD1270944-PDA, dated 24/Feb/2015 remains valid until 23/Feb/2020 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 Vessels (2015) 1-1-4/7.7, 1-1-A 3 & 4, 4-8-3/9, 4-8-5/3.7.6, 4-8-5/5.17.11 Offshore Support Vessels (2015) 1-1-4/7.7, 1-1-A 3 and 4, 4-8-3/9, 4-8-5/3.7.6, 4-8-5/5.17.11 Steel Vessels Under 90 Meters (295 Feet) in Length (2015) 1-1-4/7.7, 1-1-A 3 and 4, 4-6-4/13, 4-6-5/1.11.4, 4-6-5/3.17.11 Mobile Offshore Drilling Units (2015) 1-1-4/9.7, 1-1-A 2 and 3, 4-3-4/7, 6-1-7/17.3.6, 6-1-7/19.15 Facilities on Offshore Installations (2015) 1-1-4/9.7, 1-1-A 2 and 3, 3-6/13, 4-6/1 Steel Barges (2015) 1-1-4/7.7, 1-1-A 3 & 4, 4-1-3/9.1

**National Standards:**

NEK TS 606: 2009, CSA C 22.2 No.: 03-09 (2010)

**International Standards:**


IEC 60228 (2004), IEC 60092-350 (2014), IEC 60092-354 (2014), IEC 60092-360 (2014), IEC 60332-1-2 (2004), IEC 60332-3-22 (2009), IEC 60754-1 (2011), IEC 60754-2 (2011), IEC 61034-1 (2013), IEC 61034-2 (2013)

**Government Authority:**

**EUMED:**

**Others:**

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	15-GD1270944-PDA	24/FEB/2015	23/FEB/2020



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.