



CERTIFICATE NUMBER

14-T1283212-PDA

DATE

21 November 2014

ABS TECHNICAL OFFICE

Taipei Engineering Services

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
TOP HI-TECH CO., LTD. - NEW TAIPEI CITY

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: **Lighting Fixtures, LED, Hazardous Area**

MODEL: **THT-L1102, THT-L1105A and THT-L1203**

This Product Design Assessment (PDA) Certificate 14-T1283212-PDA, dated 21/Nov/2014 remains valid until 20/Nov/2019 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.

AMERICAN BUREAU OF SHIPPING

Shou-Hua Huang
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 manufacturing process without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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PRODUCT:

Lighting Fixtures, LED, Hazardous Area

TIER: 3

MODEL:

THT-L1102, THT-L1105A and THT-L1203

Intended Service:

Lighting in Marine and offshore platform applications

Description:

LED luminaires intended for use in hazardous areas zone 1, zone 2, zone 21 and zone 22

Ratings:

Temperature Rating: -20 Deg.C~+40 Deg.C;

Humidity Rating: 65%RH~100%RH;

Environment: Hazardous, Chemical corrosive, Salty, Dusty;

Hazardous area Classification: Zone 1, Zone 2, Zone 21 and Zone 22;

Voltage Rating: THT-L1102 and THT-L1105A: 110Vac or 220 Vac; THT-L1203: 24 Vac, 110Vac or 220 Vac;

Frequency: 50/60Hz;

Lighting Rating: THT-L1102: 60W, 80W or 100W; THT-L1105A: 40W or 60W; THT-L1203: 20W;

Hazardous Area Rating:

THT-L1102: II 2 G Ex d IIB+H2 T5...T4 Gb and II 2 D Ex tb IIIC T110 Deg.C Db;

THT-L1105A: II 2 G Ex d IIB+H2 T5...T4 Gb and II 2 D Ex tb IIIC T108 Deg.C Db;

THT-L1203: II 2 G Ex d IIB+H2 T5...T4 Gb and II 2 D Ex tb IIIC T105 Deg.C Db

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.

Use Mixed Text. Also, ATEX certified equipment is not to be installed in hazardous areas on U.S vessels unless it can be proven to have been tested to the applicable IEC 60079 series standards by an independent laboratory accepted by the U.S coast Guard. USCG notice 01-12 (February 7, 2012).

All electrical equipment intended for installation in hazardous areas are to be certified safe type based on the class of the hazardous area at its location of installation. Certificates in this regard are to be presented to the ABS Surveyor for verification on a case by case basis.

Unless specially directed by Administration, this approval is not to be construed as a substitute for flag Administration's approval.

The Manufacturer declared that these products absolutely do not be used in Zone 0.

Comments:

TOP HI-TECH CO., LTD.

Installation in Hazardous Areas is to be in accordance with 4-8-4/27, 5C-1-7/31 of the 2014 Steel Vessel Rules and 4-3-3/9 of the 2014 Mobile Offshore Drilling Units Rules as applicable and Special Conditions for Safe Use on corresponding Hazardous Area certificates.

In order to safely operate in accordance with each of the operating instructions, the installation, inspection and maintenance of the device is to be carried out by experienced people who trained various explosion protection laws and regulations of safe operation (IEC / EN 60079-14 and IEC / EN 60079-17) and the general principles of classification of the regions. These persons should implement appropriate in-service training periodically, and has electrician (machine) certificate qualifications and the background about explosion safe. A copy of IEC / EN 60079-14 and IEC / EN 60079-17 are to be maintained on board for future use.

Electrical equipment is to be constructed of durable, flame-retardant, moisture resistant materials, which are not subject to deterioration in the marine environment and at the temperatures to which it is likely to be exposed. Electrical equipment is to be designed such that current-carrying parts with potential to earth are protected against accidental contact.

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

Notes / Drawings / Documentation:

This Certificate is design assessed on the basis of the EC-Type Examination Certificates issued by TUV Rheinland: TUV 13 ATEX 7462 X 13th December 2013, TUV 13 ATEX 7463 X 2014-04-24, TUV 13 ATEX 7464 X 2014-07-03 and IECEx Certificate of Conformity: IECEx TUR 13.0016X 2013-12-13, IECEx TUR 14.0019X 2014-04-24 and IECEx TUR 14.0025X 2014-07-03

Term of Validity:

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STANDARDS

ABS Rules:

The Rules applicable to this assessment are covered to the following only:

- Steel Vessel Rules (2014) 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.3, 4-8-3/1.7, 4-8-3/1.11.1, 4-8-3/13.3.2 and 5C3-7/3.7.3 ii);
- Steel Vessels Under 90M (295 Feet) in Length (2014) 1-14/7.7, 1-1-A3 and 1-1-A4, 4-6-3/3.17 and 4-6-3/11.1.1(a);
- Offshore Support Vessels (2014) 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.3, 4-8-3/1.7, 4-8-3/1.11.1 and 4-8-3/13.3.2;
- Facilities on Offshore Installations (2014) 1-14/7.7, 1-1-A2 and 1-1-A3;
- MODU Rules (2014) 1-14/7.7, 1-1-A2, 1-1-A3, 4-3-1/15, 4-3-3/3.1.1(a), 4-3-3/3.17, 4-3-3/9.1.2(b) and 4-3-3/9.1.2(c)

National:

British Standard BS EN 60079-0:2012, EN 60079-1:2007 and EN 60079-31:2009

International:

IEC 60079-0 Edition 6.0 2011-06; IEC 60079-1 Sixth edition 2007-04; IEC 60079-31 Edition 2.0 2013-11

Government Authority:

NA

EUMED:

NA

TOP HI-TECH CO., LTD.

Others:

NA