



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

19-HS1900965-PDA
26-Sep-2019
25-Sep-2024
Houston ESD - Electrical

CERTIFICATE OF Product Design Assessment

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

AW-LAKE COMPANY

located at

**2440 W CORPORATE PRESERVE DR. #600, OAK CREEK, WI,
United States, 53154**

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 Meter, Flowmeter

Model Meter Mount TCM-xxxx--xx-xxxx-xxxx (Tricor Flowmeter + Transmitter), Remote Mount TCM-xxxx-xx-xxxx-xxxx (Tricor Flowmeter) & TCE80xx-x-xxxx-xx-x x (Tricor Transmitter/Electronics)

This Product Design Assessment (PDA) Certificate remains valid until 25/Sep/2024 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

Tim Kimble, Engineer/Consultant

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)

AW-LAKE COMPANY

2440 W CORPORATE PRESERVE DR. #600

OAK CREEK WI

United States 53154

Telephone: 414-574-4300

Fax: 414-574-4301

Email: miverson@aw-lake.com

Web: aw-lake.com

Tier: 2 - PDA Issued

Product: Meter, Flowmeter**Model:** Meter Mount TCM-xxxx--xx-xxxx-xxxx (Tricor Flowmeter + Transmitter), Remote Mount TCM-xxxx-xx-xxxx-xxxx (Tricor Flowmeter) & TCE80xx-x-xxxx-xx-x x (Tricor Transmitter/Electronics)**Intended Service:**

Marine and Offshore Applications - Fuel Consumption Measurement, Chemical Injection measurement.

Description:

Flowmeter, Coriolis Mass Flow measuring System.

Rating:

Mass Flow Rate: 325 - 230,000 kg/hr;

Pressure: 100 thru. 345 bar (1450-5000 psi);

Pipe size: 1/8" to 3"

Supply voltage: 90 V -240 VAC, 24 VDC;

Power consumption: 13 Watt max. (VAC); 4 Watt max. (VDC)

Hazardous Area Classification:

ATEX II 2G Ex d [ia] IIB & IIC T4 Gb, II 2G Ex ia IIB & IIC T4 Gb;

IECEX Ex d [ia] IIC T4 Gb; Ex ia IIC T4 Gb;

CSA certified to Class 1, Div 1, Groups C & D, Temperature Code: T4

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.

Comments:

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

Each particular application and installation is to be specifically approved in conjunction with the relevant system, locations and environmental conditions.

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 ABS Surveyor for verification on a case by case basis.

Comments/Restrictions contained on the Certificate of Compliance to be followed.

Notes/Drawing/Documentation:

Product Brochure - Coriolis Flow Solutions for a Global Marketplace;

Diamond Shaped Meter Joints, TCM-325, TCM-650, TCM-1550 & TCM-3100;

U-Shaped Meter Joints, TCM-5500, TCM-7900, TCM-28K & TCM-65K;

U-Shaped Meter Joints, TCM-230K;

Doc. 140812, Tricor Meter Size and Materials.

IECEX Certificate of Conformity, Cert No: IECEX BVS 12.0098X, Issue No. 4, by DEKRA EXAM GmbH dated 2016-08-04;

EC-Type Examination Certificate BVS 11 ATEX E 033 X, with Supplements, issued by DEKRA EXAM GmbH dated 2016-04-19;

CSA Certificate of Compliance, Certificate No. 2534011, issued 2017-08-10

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Terms of Validity:

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STANDARDS

ABS Rules:

Rules for Conditions of Classification, Part 1 - 2019, 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
Marine Vessels Rules 4-8-3/1.7, 4-8-3/1.11 Table 2, 4-8-3/13, 4-8-4/27
Steel Vessels Rules 4-8-3/1.7, 4-8-3/1.11 Table 2, 4-8-3/13, 4-8-4/27
Steel Vessels Under 90 Meters (295 feet) in Length Rules 4-6-1/11, 4-6-1/15, 4-6-3/11
Offshore Support Vessels Rules 4-8-3/1.7, 4-8-3/1.11 Table 2, 4-8-3/13, 4-8-4/29

Rules for Conditions of Classification, 2019- Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:
Mobile Offshore Drilling Units 4-3-1/11, 4-3-1/15, 4-3-3/9
Mobile Offshore Units 4-3-1/11, 4-3-1/15, 4-3-3/9

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA