



CERTIFICATE NUMBER  
15-VC1376396-PDA

DATE  
01 Jul 2015

ABS TECHNICAL OFFICE  
TIV-MEX-Veracruz Engineering  
Services

# CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of  
**DETCO INC.**

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: **Gas Detection and Alarm System**

Model: **DM-100, DM-700, DM-500IS/600IS, DM-534/634**


This Product Design Assessment (PDA) Certificate 15-VC1376396-PDA, dated 01/Jul/2015 remains valid until 30/Jun/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.

AMERICAN BUREAU OF SHIPPING

  
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Tim Kimble  
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 the terms and conditions as contained in ABS Rules 1-1-A/3.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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Web: www.detcom.com

**Tier: 3 - Type Approved, unit certification not required**

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**Product: Gas Detection and Alarm System**

**Model: DM-100, DM-700, DM-500IS/600IS, DM-534/634**

**Intended Service:**  
Marine & Offshore Application

**Description:**

Carbon Monoxide Sensor (Electrochemical Fuel Cell): DM-700-CO, 500IS-CO, 600IS-CO  
Hydrogen Sulfide Sensor (Electrochemical Fuel Cell): DM-700-H2S, 500IS-H2S, 600IS-H2S;  
Sulfur Dioxide Sensor (Electrochemical Fuel Cell): 500IS-SO<sub>2</sub>, 600IS-SO<sub>2</sub>;  
Oxygen Sensor (Galvanic Metal Air Battery): DM-700-O<sub>2</sub>,  
Oxygen Sensor (Galvanic Metal Air Battery): DM-534 & DM-634  
Toxic Gas Detection Sensor ( H<sub>2</sub>S) : Model DM-100-H<sub>2</sub>S;

**Rating:**

500IS-H<sub>2</sub>S, 500IS-CO, 600IS-H<sub>2</sub>S, 600IS-CO, DM-700-H<sub>2</sub>S, DM-700-CO Measuring Range: 0 to 100 ppm  
DM-700-O<sub>2</sub>, DM-534, DM-634 Measuring Range: 0 to 25% volume;  
DM-700-SO<sub>2</sub>, 600IS-SO<sub>2</sub>, 500IS-SO Measuring Range: 0 to 20 ppm;  
DM-100-H<sub>2</sub>S Measuring Range: 0 to 100 ppm;  
DM-700-O<sub>2</sub>, DM-700-SO<sub>2</sub>, DM-534, DM-634, DM-60IS-SO<sub>2</sub>, DM500IS-SO<sub>2</sub> Operating Temperature: -4°F to +122°F ( -20°C to +50°C ),  
DM-700-CO, DM-600IS-CO, DM-500IS-CO, DM-500IS-H<sub>2</sub>S & DM-100-H<sub>2</sub>S Operating Temperature: -40°F to +122°F ( -40°C to +50°C ),  
DM-700-H<sub>2</sub>S, DM-600IS-H<sub>2</sub>S Operating Temperature: -40°C to +65°C Intermittent  
Output DM-500IS-H<sub>2</sub>S, DM500IS-SO<sub>2</sub>, DM-500IS-CO, DM-534 : 4-20 mA DC;  
Output DM-600IS-H<sub>2</sub>S, DM-60IS-SO<sub>2</sub>, DM-600IS-CO, DM-634, DM-700-SO<sub>2</sub>, DM-700-CO, DM-700-H<sub>2</sub>S, DM-700-O<sub>2</sub> : 4-20 mA DC & RS-485 Modbus  
Hazardous Location:  
DM-700-SO<sub>2</sub>, DM-700-CO, DM-700-H<sub>2</sub>S, DM-700-O<sub>2</sub>: CSA/US Class I, Div. 1, Groups B, C & D; Class I, Zone 1, Groups IIB + H<sub>2</sub> (ATEX); Explosion Proof;  
DM-500IS-H<sub>2</sub>S, DM500IS-SO<sub>2</sub>, DM-500IS-CO, DM-534, DM-600IS-H<sub>2</sub>S, DM-60IS-SO<sub>2</sub>, DM-600IS-CO, DM-634: CSA/US Class I, Div. 1, Groups B, C & D; Explosion Proof;  
DM-100-H<sub>2</sub>S - CSA/US Class I, Div 1 Groups A, B, C & D (Ex Proof w/ integral I.S. sensor or I.S. when installed per control drawing 3993), ATEX: II 1G Ex ia IIC T4 Ga (w/ I.S. barrier installed), II 2G Ex mb [ib] ib IIC T4 Gb; Please refer to "www.detcon.com" for further Features & Specification details.

**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

- i) ATEX certified equipment is not to be installed in hazardous areas on U.S. vessels unless it can be prove to have been tested to the applicable IEC 60079 series standards by an independent laboratory accepted by the U.S Coast Guard. USCG Page 1 of 2 notice 01-12 (February 7, 2012).
- ii) 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:**

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

- i) Each installation is to be specifically approved based on ABS Rule requirements.

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- ii) Application and use are to be in accordance with the manufacturer's instructions.
- iii) Installation in Hazardous Areas is to comply with 4-8-4/27.1, 27.5 of the Steel Vessels Rules and 4-3-3/9 of the Mobile Offshore Drilling Unit Rules.

**Notes/Drawing/Documentation:**

CSA Certificate of Compliance No. 1808890, Issed 16 July 2006;  
CSA Certificate of Compliance No. 1089670(LR 69520-15) Issued 10 Sept. 2002;  
CSA Certificate of Compliance No. 1172191, Issued 10 Sept. 2002;  
CSA Test Report No. 1808890 Issued 16 July 2006.  
Data Sheet No. R053112, Models: DM-534, DM-634, 500IS-CO, 600IS-CO, 500IS-H2S, 600IS-H2S, 500IS-SO2, 600IS-SO2;  
Data Sheet No. R110614, Models: DM-700-CO, DM-700-H2S, DM-700-O2;  
Data Sheet No. R041213, Model DM-100-H2S.

**Terms of Validity:**

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**STANDARDS**

**ABS Rules:**

Rules for Conditions of Classification, Part 1 2015 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:  
Steel Vessel 4-8-3/1.11, 4-8-3/Table 2, 4-8-3/13, 4-8-4/27, 5C-3-7/3.7.5, 5C-8-13/6, 5C-9-17;  
Rules for Conditions of Classification, Part 1 – 2015 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:  
Mobile Offshore Drilling Units 4-3-6/3, 4-3-3/9.  
Rules for Building and Classing Facilities on Offshore Installations 3-8/7.3.

**National:**

UL 1203 (2000), UL 916 (1998), UL 913 (2002), UL 1604 (1995), ANSI/ISA -12.13.01(2000), ANSI/ISA-92.0.01(1998) for HS2,

**International:**

CSA Sid C22.2 No. 30-M1986, No. 142-M1987, No. 157.92 (1992), No. 152.M1984.

**Government:**

NA

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**EUMED:**  
NA

**OTHERS:**  
NA