



CERTIFICATE NUMBER
14-HS1299532-PDA

DATE
06 Feb 2015

ABS TECHNICAL OFFICE
Houston SED Machinery - Piping
& Electrical Sys.

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of
KIDDE-FENWAL 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: **Fire Suppression System**

Model: **ECS Advanced Delivery Fire Suppression System with 3M Novec 1230**

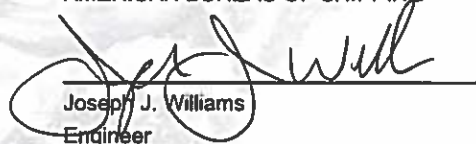
This Product Design Assessment (PDA) Certificate 14-HS1299532-PDA, dated 06/Feb/2015 remains valid until 05/Feb/2020 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

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.

AMERICAN BUREAU OF SHIPPING


Joseph J. Williams
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/5 9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

KIDDE-FENWAL INC.

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Web: www.kiddefiresystems.com

Tier: 3 - Type Approved, unit certification not required

Product: Fire Suppression System

Model: ECS Advanced Delivery Fire Suppression System with 3M Novec 1230

Intended Service:

Marine and Offshore Applications - Machinery Space and Cargo Pump rooms.

Description:

ECS Advanced Delivery Fire Suppression System with 3M Novec 1230.

Rating:

Ratings to be in accordance with Manual P/N 06-237257-001.

Service Restriction:

Unit Certification is not required for this product.

1. This Type Approval only covers the individual control, activation, distribution, and alarm components as listed in document 06-237257-001, July 2014. Complete details for each 3M Novec 1230 Fire Suppression System installation must be submitted to an ABS Technical Office for review and approval and are to include the following:

- a) System schematic and arrangement drawings indicating compliance with 4-7-3/3, 4-7-3/3.13 of the Steel Vessel Rules; 5-2-3/8 of the MODU Rules; 4-5-2/11.9 of the Steel vessels < 90M Rules, SOLAS Ch. II-2/Reg. 10.4 and IMO MSC/Circ. 848 amended by IMO MSC.1/Circular 1267.
- b) Control arrangement and location of release boxes as per 4-7-3/3.13.4(c) of the Steel Vessel Rules.
- c) Capacity calculations in accordance with approved 3M Novec 1230 (manual) requirements.
- d) Complete Bill of materials (including shipyard pipe work) as per 4-7-3/3.13.3 of the Steel Vessel Rules.
- e) Storage arrangements for the agent cylinders indicating compliance with 4-7-3/3.13.4(a) of the Steel Vessel Rules and SOLAS Ch. II-2/Reg. 10.4.3; The temperature of the cylinder storage area is to be between 32 °F and 130 °F. Further the storage room is to be in accordance with 4-7-3/3.1.9 of the Steel Vessel Rules.
- f) Control arrangements for closing all openings and stopping of ventilation fans;
- g) An audible and visual pre-discharge alarm is to be provided in accordance with 4-7-3/3.1.5 and paragraph 6 of IMO MSC/Circ.848 as amended by MSC/Circ.1267 as per 4-7-3/3.13.4 (b) of the Steel Vessel Rules.
- h) All piping, electrical and mechanical components' part numbers are to be listed in the "Kidde Fire Systems ECS Advanced Delivery Fire Suppression System Marine Series with 3M Novec 1230 Fire Protection Fluid - Design, Installation, Operation and Maintenance Manual" P/N 06-237257-001 of July 2014.
- i) All components part numbers are to be as listed in the design, installation, operation and maintenance manual.
- j) It should be noted that Novec 1230 is not for the protection of ships cargo holds.

2. Documentation verifying design, fabrication and inspection in accordance with DOT Spec. 4BW-500 of each 3M Novec 1230 agent cylinder, is to be made available to the Surveyor attending installation; Refer to 4-4-1/1-11.4 of the ABS Steel Vessel Rules & USCG Certificate No. 162.161/14/0.

3. Acceptance of the agent by the appropriate Flag Administration.

4. For installations not governed by SOLAS, acceptance by the Flag Administration of the SOLAS compliant storage of extinguishing medium within the protected space, if applicable.

Comments:

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

The arrangement of the controls is to be in accordance with 4-7-3/3.13.4 (c) of the Steel Vessel Rules. When this system is installed for automatic actuation, it is not permitted when the protected space is normally accessed by personnel. If the protected space is permanently unmanned, except for repairs or maintenance, automatic actuation may be allowed in addition to manual actuation provided the conditions listed on 4-7-3/3.13.4(c) are to be complied with.

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Tier: 3 - Type Approved, unit certification not required

For US Flag Vessels: Systems are to have releasing stations consisting of one control to operate the stop valve to the protected space and a second control to release at least the required amount of agent. These two controls are to be located in a box or other enclosure clearly identified for the particular space. In addition to the above, automatic discharge arrangements may be used for spaces having a gross volume less than 6,000 cubic feet. However, automatic discharge is required for spaces having a gross volume less than 6,000 cubic feet where the agent is stored in the protected space subject to conditions in 46 CFR 95.16.

Notes/Drawing/Documentation:

Drawing No. 06-237257-001, Kidde Fire Systems ECS Advanced Delivery Fire Suppression System Marine Series w/ NOVEC 1230 Protect, Revision: -, Pages: 251
Drawing No. 141120 Kidde COA 14, USCG, Revision: -, Pages: 11
Drawing No. 3049464, FM Approval, Revision: -, Pages: 1
Drawing No. 3049464coc141021, FM CoC, Revision: -, Pages: 1
Drawing No. 45-500201-001, Cylinder & Valve Assy, Revision: AA, Pages: 1
Drawing No. 45-500351-001, Cylinder & Valve Assy, Revision: AA, Pages: 1
Drawing No. 45-500601-001, Cylinder & Valve Assy, Revision: AA, Pages: 1
Drawing No. 45-500901-001, Cylinder & Valve Assy, Revision: AA, Pages: 1
Drawing No. Correspondence, Type Approval Application, Revision: -, Pages: 2
Drawing No. Data Sheet-20131114-141835_IMO testing at UL_final, Lab Data Package, Revision: -, Pages: 30
Drawing No. EX4674-20141101-Certificate of Compliance 9-4, Certificate of Compliance, Revision: -, Pages: 4

Terms of Validity:

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STANDARDS

ABS Rules:

Rules for Conditions of Classification, Part 1 - 2014 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

Steel Vessels 4-7-3/3.13, 4-7-3/3.1.5, 4-7-3/3.1.9, 4-7-3/Table 2;

Steel Vessels 90 Meters (295 feet) in Length 4-5-2/1.9;

Rules for Conditions of Classification, Part 1 - 2014 Offshore units and Structures 1-1-A2, 1-1-A3, which covers the following:

Mobile Offshore Drilling Units 5-2-3/8;

National:

NFPA 2001, UL 2166

International:

2007 Edition Supplement 2014 FSS Code Chapter 5.2.5, IMO MSC/CIRC 848 as amended by IMO MSC.1/CIRC.

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1267; Reg. II-2/10.4 SOLAS.

Government:

USCG Approval No. 162.161/14/0 dated 5 November 2014, Expiry date 20 November 2019.

EUMED:

NA

OTHERS:

NA