



### ***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 17-OCT-2022. 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 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: Fire Extinguishing System**

**Model Name(s): Kidde Fire Systems ECS Advanced Delivery Fire Suppression System Marine Series with HFC-227ea Agent: DIOM - 06-236595-001 October 2014**

**Presented to:**  
KIDDE-FENWAL INC.  
400 MAIN STREET  
MA 01721  
United States

|                              |   |
|------------------------------|---|
| <b>Intended Service:</b>     | Marine & Offshore Applications - Machinery Space and Cargo Pump Rooms.  |
| <b>Description:</b>          | Total Flooding Clean Agent HFC-227ea Engineered Fire Suppression System.  |
| <b>Tier:</b>                 | 3   |
| <b>Ratings:</b>              | Ratings to be in accordance with Manual P/N 06-236595-001.  |
| <b>Service Restrictions:</b> | Unit Certification is not required for this product. The Type Approval only covers the individual control, activation, distribution, and alarm components as listed in document 06-236595-001 October 2014; Complete details for each HFC-227ea (FM-200) Fire Suppression System installation must be submitted to an ABS Technical Office for review and approval and are to include the following: a) When calculating the net volume of a protected space, the net volume should include the bilge volume, the volume of the casing and the volume of the free air contained within the air receivers that may in the event of a fire be released into the protected space. b) 95% of the extinguishing agent is to be discharged in 10 seconds. c) System schematic and arrangement drawings indicating compliance with 4-7-3/3, 4-7-3/3.11 of the Steel Vessels Rules; 5-2-3/3, 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 as amended by MSC.1/Circ. 1267;) Control arrangement and |

location of release boxes as per 4-7-3/3.11.4 (c) of the Steel Vessel Rules; d) Capacity calculations in accordance with Rules requirements (Minimum concentration shall not be less than 8.7% for USCG approved applications protecting machinery spaces, and otherwise in accordance with Table 3-1 of document 06-236595-001 of October 2014. e) Complete Bill of materials (including shipyard pipework) as per 4-7-3/3.11.3 of the Steel Vessel Rules. f) Storage arrangements for the agent cylinders indicating compliance with SVR 4-7-3/3.11.4 (a) 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; g) Control arrangements for closing all openings and stopping of ventilation fans; h) 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 4-7-3/3.11.4 (b) of the Steel Vessel Rules. i) 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 FM200 Agent - Design, Installation, Operation and Maintenance for Marine" 06-236595-001 of October 2014; j) All components part numbers are to be as listed in the Design, Installation, Operation and Maintenance Manual. k) ABS Certification is to be provided for each cylinder, except for cylinders, means pilot cylinders and other agent cylinders which are constructed, tested and certified as per Steel Vessels Rules 4-4-1/1.11.4. It means, other certificate such as TPED or DOT, traceable to the cylinder's serial number, is accepted. l) Acceptance of the agent by the appropriate Flag Administration m) 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. 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. The scope of Type Approval is to comply with MSC.1221 dated 11 December 2006. The arrangement of the controls is to be in accordance with 4-7-3/3.11.4 (c) of the Steel Vessel Rules. When this system is installed for automatic release, the conditions are in accordance with 4-7-3/3.11.4(c) are to be met and verified by the attending surveyor. For US Flag Vessels: Systems must 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 must 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. USCG does not allow Electrically Triggered Detection & Control System. USCG requirements for Storage inside small Spaces (6000 cu.ft. and smaller) include Mechanical Rate of Rise Detection, Automatic Activation, additional Mechanical Activation requiring 2 Actions, and readily Accessible Horizontal Means of Escape.

**Notes / Documentation:**

Drawing No. Correspondence, TA APP, Revision: -, Pages: - Drawing No. Correspondence, 11-HS776659-PDA\_DoC, Revision: -, Pages: - Drawing No. Correspondence, Email\_PO, Revision: -, Pages: -

**Term of Validity:**

This Product Design Assessment (PDA) Certificate 17-HS1646513-PDA, dated 18/Oct/2017 remains valid until 17/Oct/2022 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:**

Rules for Conditions of Classification, Part 1 - 2017 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessels 4-7-3/3, 4-7-3/3.11, 4-7-3/3.1.5, 3-7-3/3.1.9, 4-7-3/Table 2; Steel Vessels Under 90 Meters 4-5-2/11.9; Rules for Conditions of Classification, Part 1 - 2017 Offshore Units and Structures

1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following: Mobile Offshore Drilling Units 5-2-3/8;

**National Standards:**

**International Standards:**

IMO MSC/Circ.848 as amended by MSC.1/Circ.1267 dated 4 June 2008; SOLAS Reg. II-2/10.4 (2014 Consolidated Edition); FSS Code Chapter 5 (2015 Edition);

**Government Authority:**

US Coast Guard Approval No: 162.161/7/0, Issued: 10 August 2017 Expires: 10 August 2022

**EUMED:**

**Others:**

**Model Certificate**

**Model Certificate No**

**Issue Date**

**Expiry Date**

PDA

17-HS1646513-PDA

19-OCT-2017

17-OCT-2022



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.