



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 13/MAY/2020. 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 12/APR/2021 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 Suppression System
Model Name(s): Engineered Carbon Dioxide Fire Suppression Systems

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

Intended Service: Marine & Offshore Applications -To be used as the basis of Design for Marine CO2 Fire Extinguishing Systems using Approved Components as contained in Manual P/N220610.

Description: The Manual provides General Information, System Design, (approved) System Arrangements, details of Equipment, Equipment Installation Requirements, Operation, and Inspection and Maintenance requirements.

Ratings: Ratings to be in accordance with Manual P/N220610.

Service Restrictions: 1) 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. 2) Automatic release of CO2 is not permitted in accordance with 4-7-3/3.1.7 of the Steel Vessel Rules (SVR). However in accordance with 4-7-1/1 of the SVR, "Consideration may be given to Fire Extinguishing Systems which comply with the published requirements of the Administration". Accordingly for U.S. Flagged vessels, arrangements for automatic release as indicated in a U.S.C.G approved manual may be accepted. Other Administrations should be approached for their respective position on automatic release. 3) The volume of required CO2 gas is to be calculated using the greater of the ABS Rule formulae and the Kidde Manual formulae requirements. (Note: for volume of CO2 required for special category spaces with volumes over 50000ft3, the ABS required 45% requires a greater volume of CO2 greater than the required Kidde Manual flooding factor of

22. 4) Although piping up to ¾" diameter may be Sch. 40, (if welded), threaded piping must be in accordance with the minimum wall thickness required by 4-6-2/Table 4 of the SVR. Accordingly threaded pipe ¾" and ½" is to be Sch.80. 5) Not to be used for class D fires. 6) Certification is to be provided for each cylinder, inclusive of main, pilot and galley cylinders, and be made available to the attending Surveyor when the system is to be installed. 7) The equipment covered in the type approval includes valve control boxes and delay units. However, in each installation, the system arrangement indicating the following details are to be submitted to the ABS technical department: (a) The system layout showing operation philosophy; (b) The manifold(s) design and pipe scantling details; (c) Capacity calculations and discharge time in accordance with the Rules; (d) Wiring diagrams and cable specifications showing cable layout, alarm circuitry and location; (e) Locations of the release boxes as per 4-7-3/3.3.5 of the SVR; (f) Dimensions and material of shipyard pipework; (g) Control arrangements for the closing of all ventilation and stopping fans. 8) The gas smothering medium is to be stored outside the protected space, and is to be situated in a safe and readily accessible position in accordance with 4-7-3/3.1.9 of the SVR and 5-2-3/3.1.1 of the MODU Rules. 9) Although the manual indicates that a remote pull box is required in arrangement # 1, if the location of the bottles (Maximum total of 300lbs) is at the same location as the remote pull box is required (at a readily accessible location, close to and outside of the protected space), then a manual release on the bottles is sufficient in lieu of the remote release.

Comments: - The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. - ABS review Engineers and Surveyors are to be aware that various differing 'Kidde' Manuals exist. Therefore specific Vessel details are to identify the Manual that was used in the preparation of a vessel CO2 System (ie Manual Part Number, Date of Revision etc.) - The Volume of Air Reservoirs are to be converted to Free Air Volume and added to the Gross Volume of Machinery Spaces when calculating the required Volume of the Extinguishing Medium. Alternatively, a Discharge Pipe from the Safety Relief Valves may be fitted and led directly to the open air.

Notes / Documentation: Identifying Data: - System Design and Components as contained in Marine Design, Installation, Operation and Maintenance Manual P/N 220610, Version 2.3 dated November 2008. - UL Report File EX923 – dated April 2015 * P/N 81-220610-003, dated February 2014, Supplement to Marine Carbon Dioxide, Version 2.4, Design, Installation, Operation & Maintenance Manual Rev. DA (P/N 220610), Chapters 1 to 8; * P/N 81-220610-002, dated September 2013, Supplement to Marine Carbon Dioxide, Version 2.4, Design, Installation, Operation & Maintenance Manual Rev. DA (P/N 220610), Chapters 1 to 8; * P/N 220610, dated January 2013, Marine Carbon Dioxide, Version 2.4, Design, Installation, Operation & Maintenance Manual, USCG 162/038/1/0 Kidde Fire Systems. - Coast Guard Certificate No. 162.038/1/0; Expires: 26 June 2018; Issue Date: 30 March 2015.

Term of Validity: This Product Design Assessment (PDA) Certificate 16-HS1490503-PDA, dated 13/Apr/2016 remains valid until 12/Apr/2021 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 2016 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessel Rules 4-7-1/1, 4-7-2/1.1.1, 4-7-3/3; Offshore Support Vessel Rules 4-7-3/3; Steel Vessels Under 90 M in Length 4-5-2/11.3; 2016 ABS Rules for Conditions of Classification, Part 1 – 2016 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following: Mobile Offshore Drilling Units 5-2-3/3;

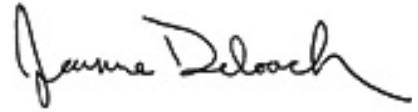
National Standards:
International Standards:

Reg. II-2/10.4, 10.5 and 10.7 of SOLAS 74/78 as amended (2014 Consolidated Edition); 2015 FSS Code Chapter 5 and IACS UI SC 252 dated October 2011;

Government Authority:

EUMED:**Others:**

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-HS1490503-PDA	14/APR/2016	12/APR/2021



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.