



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

20-2049546-1-PDA
18-Mar-2021
29-Oct-2025
Houston ESD - Piping

CERTIFICATE OF Product Design Assessment

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

KIDDE-FENWAL INC.

located at

400 MAIN STREET, ASHLAND, MA, United States, 01721

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: Engineered Carbon Dioxide Fire Suppression Systems
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 29/Oct/2025 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

Yongjin Lee

Yongjin Lee, 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)

KIDDE-FENWAL INC.

400 MAIN STREET

ASHLAND MA

United States 01721

Telephone: 508-881-2000

Fax: 508-881-1255

Email: kf.engcompliance@fs.utc.com

Web: www.kidde-Fenwal.com

Tier: 3 - Type Approved, unit certification not required

Product: Fire Suppression System
Model: Engineered Carbon Dioxide Fire Suppression Systems
Endorsements:

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/N 220610.

Description:

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

Rating:

Ratings to be in accordance with Manual P/N 220610.

Service Restriction:

- 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 Marine Vessels Rules (MVR) and 5-2-3/8.7.3 of the Mobile Offshore Units (MOU). However in accordance with 4-7-1/1 of the MVR, "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 MVR. 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 MVR;
 - (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 MVR and 5-2-3/3.1.1 of the MOU 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

KIDDE-FENWAL INC.

400 MAIN STREET

ASHLAND MA

United States 01721

Telephone: 508-881-2000

Fax: 508-881-1255

Email: kf.engcompliance@fs.utc.com

Web: www.kidde-Fenwal.com

Tier: 3 - Type Approved, unit certification not required

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/Drawing/Documentation:

Document No. 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;

Document No. P/N 81-220610-002, dated September 2013, Supplement to Marine Carbon Dioxide, Version 2.4, Design,

Document No. Installation, Operation & Maintenance Manual Rev. DA (P/N 220610), Chapters 1 to 8;

Document No. 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;

Document No. 06-237745-001, dated September 2019, High Pressure CO2 Fire Suppression System Addendum.

Document No. Coast Guard Certificate No. 162.038/1/0; Expires: June 26, 2023; Issued June 26, 2018;

Document No. UL Report File EX923 – dated April 2015;

Document No. 81-220610-005, Addendum - KFS, Odorizer, Marine, dated January 2020, Rev AA, Pages: 18

Document No. 81-220610-006, Hose Line Rack and Reel Addendum, Rev AB, dated September 2020, Pages: 18

Document No. 81-220610-007, Manifold Y Fitting Addendum, Rev AA, Pages: 8

(Note: As per Kidde-Fenwal Inc's request, the revision numbers have been taken from the last page of the documents.)

Terms of Validity:

This Product Design Assessment (PDA) Certificate remains valid until 29/Oct/2025 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.

STANDARDS**ABS Rules:**

Rules for Conditions of Classification, 2020 Marine Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2020 Marine Vessel Rules 4-7-3/3;

The Rules for Conditions of Classification - Offshore Units and Structures, 2020 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3 which covers the following:

2020 Rules for Building and Classing Mobile Offshore Units 5-2-3/3.5;

National:

NA

International:

SOLAS Reg. II-2/10.4 (2020 Consolidated Edition);

FSS Code Chapter 5 (2015 Edition);

KIDDE-FENWAL INC.

400 MAIN STREET

ASHLAND MA

United States 01721

Telephone: 508-881-2000

Fax: 508-881-1255

Email: kf.engcompliance@fs.utc.com

Web: www.kidde-Fenwal.com

Tier: 3 - Type Approved, unit certification not required

IACS UI SC 252 dated October 2011;

Government:

US Coast Guard Approval No: 162.038/1/0, Issued: June26, 2018; Expires: June 26, 2023

EUMED:

NA

OTHERS:

NA