



CERTIFICATE NUMBER 22-2318393-PDA  
EFFECTIVE DATE 28-Nov-2022  
EXPIRATION DATE 27-Nov-2027  
ABS TECHNICAL OFFICE CN Shanghai ESD

## CERTIFICATE OF Product Design Assessment

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

**VTI FIRE PRODUCTS (SHANGHAI)CO., LTD.**

located at

**FLOOR 5, NO. 5237, DONGCHUAN HIGHWAY, PUDONG NEW  
DISTRICT, SHANGHAI, China**

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 Local Application Water Mist Fire Fighting System**

**Model VTIMist**

This Product Design Assessment (PDA) Certificate remains valid until 27/Nov/2027 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

Bin-Hong Wang, Director

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

**VTI FIRE PRODUCTS (SHANGHAI)CO., LTD.**

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**Tier: 2 - PDA Issued**

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**Product:** Local Application Water Mist Fire Fighting System

**Model:** VTIMist

**Endorsements:**

**Intended Service:**

Water based local application fire fighting system for use in Category A machinery spaces to protect areas of high risk such as the hazard portions of internal combustion machinery, incinerator units, boiler fronts, purifiers for heated fuel oil, etc.

**Description:**

The system consists of the following major components:

1. Pump skid which includes an electric motor driven vertical centrifugal inline type pump (IP55), section valves, main control panel (IP44), pressure switch and relative valves or fittings.
2. Repeater panels (console mounted / wall mounted, IP23).
3. Fire detection system (T1216W), Fire control panel (IP30), Flame detector (601F-M), Smoke detectors (601P-M) and Alarms, which are not mandatorily required when the protected spaces are continuously manned and the water mist system is manual released.
4. GW Model M5 nozzle (MisterySpray K-5/1.8-60): Open nozzle (deluge type).

Under normal operation, pumps supply fresh water to the open type nozzles through section valves being released automatically and/or manually. Pumps draw water from the dedicated potable fresh water tank.

**Rating:**

The minimum operating pressure of the nozzles M5 is 3.5 bar.

K Factor- 5 lpm/bar<sup>1/2</sup>

**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. The maximum working pressure depends on the hydraulic calculations and should not exceed 16 bar.
3. The maximum nozzle spacing is 3m for all applications. Nozzle height above hazard is 0.5m to 8m with minimum nozzle pressure of 3.5 bar. With minimum nozzle pressure of 9 bar, may be installed above 8m and up to 14.5m above the hazard. Installation and arrangement of nozzles are to be in accordance with the GW Manual.
4. The system should be available for immediate use and capable of continuously supplying water-based medium for at least 20 minutes.
5. For installations protecting the high risk area of the main engine, nozzle arrangement is to be such that all areas of the main engine top (high risk area) are to be covered with water spray, this includes turbo chargers.
6. Validity is limited to countries where the ship/facility will be registered where government has authorized ABS to review drawings for fire protection on behalf of the Administration.
7. Unless specially directed by the Administration, this approval is not to be construed as a substitute for Flag Administration's approval for the purpose of SOLAS Consolidated Edition 2020), as amended.
8. This certificate may not be used for EU and US flagged vessels (MED and/or USCG have their own specific/requirements).

**Comments:**

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. The supply pump is to be provided with ABS unit certificate.
3. For each shipboard installation, copies of the following documentation are to be submitted to the appropriate ABS Engineering Office for review for compliance with the applicable requirements of ABS Rules, SOLAS and the design and installation aspects of the IMO FSS Code:
  - (a) System Manual.

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(b) System arrangement plan indicating: the location of the pumping unit, the section valves, the valve control release boxes and flushing/drain valves, protected areas, nozzle quantities and types, nozzle spacing/layout, piping layout and piping sizes, materials and wall thickness.

(c) The piping and instrument diagram of the system.

(d) Electrical wiring diagrams with cable specifications and arrangements of interface to fire detection and alarm system.

(e) Bill of materials for all components with part numbers. Data sheets for the pumps, valves, fittings, nozzles, pressure switches, fire detection and alarm equipment, system control panels etc.

(f) Calculations verifying that the required pressure and flow will be available at all nozzles, including hydraulic pressure drop calculations for all protected areas.

(g) Details regarding the proposed fresh water and sea water supply connections to the pumping unit.

4. For periodically unattended machinery spaces, the fire fighting system is to have both automatic and manual release capabilities.

5. Operational routines for periodic flushing and nozzle release tests are to be agreed with the Bureau for each installation.

6. The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

**Notes/Drawing/Documentation:**

Drawing No. AME02-1387, FWBLAFFS Drawings, Revision: 1, Pages: 1

Drawing No. AME02-TP01, Type Approval Test Program-FWBLAFFS, Revision: 0, Pages: 1

Drawing No. GW M5 No. 846, GW M5 Nozzle Manual, Revision: 0, Pages: 1

Drawing No. F01135, Sintef M5 test report on 27 September 2001, Revision: 0, Pages: 1

Drawing No. F01121, Sintef M5 test report on 5 September 2001, Revision: 0, Pages: 1

Drawing No. 162.135/4/0, GW M5 USCG Certificate, Revision: 0, Pages: 1

Drawing No. RIME 08-007, GW M5 (IP22) Test Report on 18 June 2008, Revision: 0, Pages: 1

Drawing No. SQ3409007-A, VTIMist Test Report (witnessed by ABS Surveyor on 30 NOV 2017), Revision: 0, Pages: 1

**Terms of Validity:**

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**STANDARDS**

**ABS Rules:**

ABS Rules for Building and Classing Steel Vessels 2022: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-1/7.3 & 7.5.3, 4-7-2/1.11.2.

ABS Rules for Building and Classing Mobile Offshore Units 2022: 1-1-4/9.7, 1-1-A2, 1-1-A3, 6-1-6/7.3.2.

**National:**

NA

**International:**

SOLAS (Consolidated Edition 2020), as amended, Reg. II-2/10.5.6 and IMO MSC.1/Circ.1276- Unified

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Interpretations of SOLAS Chapter II-2 (30 May 2008);  
IMO MSC/Circ. 913 (4 June 1999) and MSC.1/Circ.1387 (10 December 2010).

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA