EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB0000831

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Dry chemical powder extinguishing systems

with type designation(s)
VTI DCP Fire Suppression System

Issued to
VTI Fire Products(Shanghai) Co., Ltd.
Shanghai, **China**

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2022/1157,**
item No. MED/3.62. SOLAS 74 as amended, Regulation II-2/1, IMO IGC Code 11 and IMO IGF Code 11

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2028-02-12**.

Issued at **Hamburg** on **2023-02-13**

DNV local unit:
Shanghai

Approval Engineer:
Andre Pischanski

Notified Body
No.: **0098**

for **DNV GL SE**

Christine Mydlak-Roeder
Head of Notified Body

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

VTI DCP Fire Suppression System is fixed dry chemical powder (DCP) fire-extinguishing system.

The system is manufactured by VTI Fire Products Co., Ltd. in Shanghai, China.

Protection of on-deck cargo areas of of ships carrying liquefied gases in bulk
The main components are dry chemical powder *Dry Chemical Powder PB 70%*, DCP storage containers, propellant gas cylinders filled with nitrogen at 135 bar, safety valves, pressure regulators with outset pressure of 14 bar, piping and discharge devices, namely monitors *DPM-65* and hand hose lines fitted with branchpipes *DPG-32*.

Bunkering stations on board gas-fuelled ships
The main components are dry chemical powder *Dry Chemical Powder PB 70%*, DCP storage containers, propellant gas cylinders filled with nitrogen at 135 bar, safety valves, pressure regulators with outset pressure of 14 bar, piping and discharge nozzle type *DPN-9.5*.

Application/Limitation

Common Limitation
This certificate does only address the functionality and performance of the entire system. All system components are subject to case by case approval.

DCP storage containers are subject for separate approval and shall be delivered with Product Certificates.

Nitrogen cylinders are to be approved and certified as per applicable Class Rules or equivalent standards as specified by Flag Administration.

The system is tested for minimum ambient storage temperature of -30 °C.

Arrangement of safety valves is subject to approval on a case-by-case basis.

Other system components are to be inspected in accordance with Class Rules or equivalent standard as specified by Flag Administration.

Dry chemical powder used in the system shall be of approved type and based on the salts of potassium.

Each product is to be supplied with its manual for installation, use and maintenance.

Protection of on-deck cargo areas of of ships carrying liquefied gases in bulk
VTI DCP Fire Suppression System is approved for protection of on-deck cargo areas of of ships carrying liquefied gases in bulk. The system for is to be designed as per IMO MSC.1/Circ.1315 §3.

The following discharge arrangement was tested and fulfils discharge duration of 45 s:

- One DN 80 pipe of 140 m in length including:
  - One tee connector;
  - Six 1.5d elbow connectors;
  - Nine 3d pipe bends and

  fitted with a monitor with orifice Ø 53 mm (25 kg/s) installed at height of 8.5 m;
- One DN 80 pipe of 60 m in length including:
  - One tee connector;
  - Four 1.5d elbow connectors;
  - Five 3d pipe bends and

  fitted with a monitor with orifice Ø 45 mm (25 kg/s) installed at height of 1 m;
- One DN 40 pipe of 55 m in length including:
  - One tee connector;
  - Four 1.5d elbow connectors;
  - Six 5d pipe bends and

  fitted with a hand hose line. It consists of:
    - Hose assembly with internal Ø 31.8 mm and 33 m long;
    - Branchpipe with orifice Ø 17 mm;
- One DN 40 pipe of 120 m in length including:
  - One tee connector;
  - Four 1.5d elbow connectors;
  - Six 5d pipe bends and

  fitted with a hand hose line. It consists of:
    - Hose assembly with internal Ø 31.8 mm and 33 m long;

    - Branchpipe with orifice Ø 19 mm;
- One DN 40 pipe of 205 m in length including:
    - One tee connector;
    - Four 1.5d elbow connectors;
    - Eight 5d pipe bends and

  fitted with a hand hose line. It consists of:
    - Hose assembly with internal Ø 31.8 mm and 33 m long;
    - Branchpipe with orifice Ø 21 mm.

Monitors with orifices for flow rate of 10 kg/s and 25 kg/s are successfully tested and fulfil the requirement for discharge range of 10 m and 30 m respectively.

Monitor and remote release cabinet are successfully tested for installation at locations exposed to the weather as per IMO MSC.1/Circ.1315 §7. Other components are to be located indoor. If they exposed to weather and salty atmosphere, then the sensitive regulating parts shall be separately protected.

The following documentation is to be submitted for specific project:
- Plans showing the location of powder unit, piping, release controls, hand hoses station and monitors
- Arrangement of the assembled powder unit including release lines
- Capacity calculations (flow rate and total amount of powder)
- Material specification and dimensions for all piping and specifications for all other components
- Manual containing design, inspection, operation and maintenance procedures

Testing at installations:
- All tests and inspections defined by maker's manual
- Piping shall be tested as per applicable Class Rules
- All distribution piping shall be blown through with air or nitrogen to ensure that the piping is free from obstructions, filters to be checked
- All valves, release stations and any control systems shall be function tested
- The pipes, valves, fittings and assembled systems shall be subjected to a tightness test
- The initial testing as per IGC Code Ch.11.4.8 to verify that the system is in proper working order

Testing at periodical surveys:
- All periodic tests and inspections defined by maker's manual
- The system should also be tested and inspected as per IMO MSC.1/Circ.1432 and applicable Class Rules.

Bunkering stations on board gas-fuelled ships
VTI DCP Fire Suppression System is approved for use as a DCP fire-extinguishing system for protection of bunkering stations on board gas-fuelled ships. Systems shall be designed as per IGF Code Ch.11 §6.1.

The discharge arrangement consists of eight nozzles. It was tested and fulfils the required discharge rate of 3.5 kg/s for the duration of 45 s. Discharge piping is composed of DN 40 pipe of 15 m in length, DN 25 pipe of 1.3 m in length and DN 20 pipe of 0.6 m in length. See drawing # AME09-1-02 for exact piping arrangement.

Nozzles are successfully tested for installation at locations exposed to the weather as per IMO MSC.1/Circ.1315 §7. The other components for protection of bunker station shall be located indoor. If they exposed to weather and salty atmosphere, then the sensitive regulating parts shall be separately protected.

Type Examination documentation

1. Technical documentation:
    a. *Dry chemical powder fire suppression system for cargo areas as per IGC code - Design, installation, operation, maintenance manual (DIOM manual)* # AME09-D0200M.01 dated 2022-11;
    b. *Dry chemical powder fire suppression system as per IGF code - Design, installation, operation, maintenance manual (DIOM manual)* # AME09-D0200M.02 dated 2022-11;
2. Test report:
    a. # AME09-TP02 dated 2022-12-13;
    b. Salt spray test # 22SAS01P18D31-01009 dated 2023-01-03;
    c. Salt spray test # DD20180416001-SSC dated 2018-09-27.

Tests carried out

- The system for on-deck cargo areas of of ships carrying liquefied gases in bulk is tested according to IMO MSC.1/Circ.1315.
- The system for bunkering stations on board gas-fuelled ships the following tests are performed:
    - Minimum temperature test as per IMO MSC.1/Circ.1315;

- Flow rate test as per IGF Code Ch. 11 §6.1.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, fire technical rating and Mark of Conformity (see footnote on the first page).