

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fixed Dry Chemical Fire Extinguishing System for Gas Fuel Bunkering Station

with type designation(s)
P-BC 250-5 Marine

Issued to

Minimax GmbH & Co. KG
Bad Oldesloe, Germany

is found to comply with

DNV GL rules for classification – Ships

DNV GL offshore standards

DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations

Application :

Approved as a Fixed Dry Chemical Fire Extinguishing System for Gas Fuel Bunkering Station with capacity of at least 3.5 kg/s for a minimum of 45 s discharge.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Hamburg** on **2021-07-19**

This Certificate is valid until **2026-07-18**.

for **DNV**

DNV local station: **Hamburg – CMC North/East**

Approval Engineer: **Andrii Pishchanskyi**

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Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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

P-BC 250-5 Marine is fixed dry chemical powder (DCP) fire-extinguishing system. It consists mainly of DCP storage container, propellant gas cylinder filled with nitrogen, safety valve, pressure regulator, piping and discharge nozzle(s).

The system is manufactured by Minimax in Bad Oldesloe, Germany.

The system has the following main specifications:

Pressurizing gas	Nitrogen
Amount of gas cylinders	1
Gas cylinder volume	67 l
Gas pressure in cylinder	150 bar
Volume of DCP storage container	255 l
Maximum dry powder filling capacity	250 kg
Maximum working pressure of DCP storage container	16 bar
Type of dry chemical powder	Based on the salts of potassium
Min. discharge duration	45 s
Minimum ambient storage temperature	-35.8 °C
Nozzles	Product sheet S8-03-01 Part 1

Application/Limitation

Approved for use as a DCP fire-extinguishing system for protection of bunkering stations on board gas-fuelled ships with capacity of at least 3.5 kg/s for a minimum of 45 s discharge. A system shall be designed as per IGF Code Ch.11 §6.1.

Approved discharge arrangements of dry chemical powder units are as follows:

Number of discharge nozzles	One	Two
Max. length of piping and fittings	DN 32 pipe line with equivalent length of 117.5 m	DN 32 pipe line with equivalent length of 102.5 m
Discharge rate achieved in testing	3.9 kg/s at the powder nozzle with Ø18.5 mm orifice	5.7 kg/s at both powder nozzles with Ø15.8 mm orifices

The 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.

The powder pressure vessels are type approved by DNV certificate No. TAP00000BF. See the certificate for application, limitation, testing and certification.

Pressure gas cylinders are to be approved and certified as per DNVGL-RU-SHIP Pt.4 Ch.7 Sec.1 [5].

Arrangement of safety valves is subject to approval in each case. Other system components are to be inspected in accordance with DNVGL Rules.

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

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

Type Approval documentation

1. Test reports:
 - a. Performance test report no. 2015-Efectis-R001386[Rev.2] dated March 2016 issued by Efectis Nederland BV;
 - b. Salt spray test report doc. no. 9505 334 219xx 001 dated 2015-09-23 issued by Thales Nederland BV;
2. Powder nozzle data sheet No. S8-03-01 Part 1;
3. Operating Instructions No. 100128300 for powder unit P-BC 250-5 marine.

Tests carried out

1. Minimum temperature test as per IMO MSC.1/Circ.1315;
2. Flow rate test as per IGF Code Ch. 11 [6.1].

Marking of product

The powder units are to be marked with the name of the manufacturer and type designation.

Periodical assessment



Job Id: **262.1-021592-2**
Certificate No: **TAF00001JD**

For retention of the Type Approval, a DNV surveyor shall perform periodical assessment as per DNVGL-CP-0338 Sec.4 to verify that the conditions for the Type Approval are complied with.
To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>.