



Certificate No:
TAF00001HX

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
NK-DPNS

Issued to
NK Co., Ltd.
Busan, Korea, Republic of

is found to comply with
DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021
DNV rules for classification – Ships
DNV offshore standards

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 **Høvik** on **2021-11-25**

This Certificate is valid until **2026-11-24**.

for **DNV**

DNV local station: **Gimhae Station**

Approval Engineer: **Tessa Biever**

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Helene David-Andersen
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.



Form code: TA 251

Revision: 2021-03

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Product description

“NK-DPNS”

The system consists of a 250 L dry powder storage tank which has a capacity for 225 kg dry chemical powder of potassium sulphate agent of type ‘BC karate’ (the powder amount is sufficient for protecting one bunkering station at time), a 68L nitrogen propellant storage cylinder, a main valve, a pneumatic selection valve, pressure gauge, safety valves, pneumatic main valve and other pipe fittings, powder nozzle ‘NKDPN-11.5’ and release control cabinet.

The design pressure of the system is 15.7 bar.

For further details, see the Type Approval documentation below.

Application/Limitation

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.

The permanently installed dry chemical powder extinguishing system shall cover all possible leak points in the Gas Fuel bunkering station area.

The system shall be arranged for easy manual release from a safe location outside the protected area.

Only approved and well documented extinguishing powder shall be used.

The system is approved with the piping lengths, dimensions, number of bends, etc. as found in the Type Approval documentation below. Only stainless-steel piping shall be used.

The system response time (time from activation to powder release) shall not be more than 15 seconds.

The equipment is to be located indoor. If located exposed to weather and salty atmosphere, all sensitive regulating parts shall be separately protected.

The powder pressure vessel is subject for separate approval and shall be delivered with DNV product certificates. The pressure gas cylinders shall be in compliance with DNV-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 the DNV 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

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

User manual ‘The Operating Instruction Manual for Dry Powder Nozzle System’, Rev.0, from maker.

TA documentation ‘Dry Powder Nozzle System for Bunkering Station (model: NK-DPNS)’ dated 6 September 2018 from maker

Performance

Test report No. R2021-0240 dated 4 May 2021 from FILK, Gyeonggi-Do, Korea.

Component test

Test report KOMERI-0314-21T2008(E)) dated 6 July 2021 from KOMERI, Busan, Korea

Test report No. R2016-1227 dated 4 October 2016 from FILK, Gyeonggi-Do, Korea.

Drawing/data sheet

Drawing No. 141-0000-030, Rev.0, ‘Schematic diagram’, dated 25 November 2020 from maker.

Drawing No. 141-0000-060, Rev.0, ‘250L Dry Powder System for Nozzle Type’, dated 15 November 2020 from maker.

Data sheet No.141-200-200, ‘Dry Powder Nozzle (NKDPN-11.5)’, from maker.

Tests carried out

Tested according to DNV Type Approval Programme 474.74 (discharge test, salt spray test).



Job Id: **262.1-035327-1**
Certificate No: **TAF00001HX**

Marking of product

The main components in the system are to be marked with name of manufacturer and type designation.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.