DNV·GL

Certificate No:
TAF0000090

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fixed Water Based Local Application System

with type designation(s)
RDFF-FWBLAFFS

Issued to
Shanghai Rongde Engineering Equipment Co., Ltd.
Shanghai 020, China

is found to comply with
DNV GL rules for classification – Ships
DNV GL rules for classification – Yachts
DNV GL rules for classification – Naval vessels
DNV GL rules for classification – High speed and light craft
DNV GL offshore standards

Application :

Approved for use as a fixed water-based local application fire-extinguishing system for machinery spaces of category A.

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

This Certificate is valid until **2021-04-12**.

Issued at **Hamburg** on **2016-04-13**

for **DNV GL**

DNV GL local station: **Shanghai CMC**

Approval Engineer: **Michael Kämpf**

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.

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Job Id:
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Product description

The system with type designation RDFF-FWBLAFFS is a water spray system consisting of water supply pump(s), steel piping, section (solenoid) valves, spray heads, control system, local/remote release controls and alarm devices.

The system is to be designed according to SOLAS Ch. II-2, Reg. 10.5.6 and the principal requirements of IMO MSC.1/Circ.1387.

Only the spray heads are type approved by this certificate. Other systems components are subject to case by case approval.

The spray heads (nozzles) have the following main details:

Spray nozzle details	
Type	Open nozzle (deluge type)
Designation	RDFF-1-7N-26
Material	Aluminium bronze
Operating pressure range	1.0 – 1.2 MPa (10 – 12 bar)
k-factor (using $Q = k \times p^{1/2}$)	8.0 lpm/bar$^{1/2}$ (27.7 ltr/min @ 12 bar)

Application/Limitation

The nozzles are to be installed above the protected objects according to the following specifications:

Spray nozzle arrangement	
Nozzle grids (2x2, 2x3, etc.):	
Maximum horizontal spacing	2.5 m
Minimum vertical distance from protected object	0.75 m
Maximum vertical distance from protected object	8.0 m
Minimum lateral distance of the outer nozzles from protected object	0.0 m
Single rows of nozzles:	
Maximum horizontal spacing	1.25 m
Minimum vertical distance from protected object	0.75 m
Maximum vertical distance from protected object	8.0 m
Minimum lateral distance of the outer nozzles from protected object	0.0 m
Single nozzles:	
Minimum vertical distance from protected object	0.75 m
Maximum vertical distance from protected object	4.0 m
The nozzles are to be installed in a pendant (downward) position. Single rows of nozzles may be applied if the width of the protected object does not exceed 1.25 m. Single nozzles may be applied if the width and length of the protected object does not exceed 1.25 m.	

The following documentation is to be submitted for approval for each project:

- Arrangement plan showing location of nozzles, section valves, release controls, alarms and the pump unit
- Pressure drop calculations and water spray capacity calculations
- Documentation of power supply and control system
- Material specification and dimensions for all piping
- Specifications for all other system components
- Arrangement of interface to the fire detection and alarm system (where applicable)
- Maker's manual containing design, inspection, operation and maintenance procedures

Inspection/testing at installations:

- All tests and inspections defined by the maker's manual
- The water supply pump(s) or pump unit shall be delivered with a DNVGL product certificate. Other system components shall be inspected in accordance with the DNVGL Rules.
- Function test of local/remote release of all section valves and start of the pump unit
- Testing of alarms (SOLAS II-2/10.5.6.4)
- Testing of automatic start (in case of unattended machinery spaces)
- Testing of piping as per DNVGL Rules Pt.4, Ch.6
- All distribution piping shall be blown through with air or nitrogen to ensure that the piping is free from obstructions

Type Approval documentation

- Maker's documentation dated 2010-08-10 reviewed with GL ref.-no. 10-104980
- Maker's revised documentation dated 2010-09-29 reviewed with GL ref.-no. 10-104980
- Test reports no. NX06108, no. NX06108.1, no. NX07466.1 and no. NX07466.2, each issued by NFPT Co. Ltd.

Tests carried out

The system is tested according to IMO MSC/Circ.913 (superseded by IMO MSC.1/Circ.1387).

Marking of product

The nozzles are to be marked with the type designation whereas the pump/control unit is to be marked with the name of manufacturer and type designation.

Periodical assessment

The DNVGL'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 the procedure described in the Class Programme DNVGL-CP-0338, Section 4.