Certificate no.:
TAF0000206

TYPE APPROVAL CERTIFICATE

This is to certify:

that the FRP Grating

with type designation(s)
FRP Gratings

issued to
Nantong Drayson Composite Material Co., Ltd.
Nantong, **China**

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

Application:

For use in locations according to enclosed Structural Fire Integrity Matrix.

Application is to be considered and accepted for each case/project.

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

Issued at **Høvik** on **2025-09-22**
This Certificate is valid until **2030-09-21**.
DNV local unit: **Nantong**

for **DNV**

Approval Engineer: **Karolina Kusmider**

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 USD 300 000.

Product description

"FRP Gratings" with Vinyl, Isophthalic Polyester or Orthophthalic Polyester resin.

Product	Structural Fire Integrity Level (ASTM F3059)	Flame Spread Index (ASTM E84)	Smoke Developed Index (ASTM E84)
Vinyl resin FRP molded 2" THICK 2"× 2" SQUARE MESH	L0	15	195
Vinyl resin FRP molded 1 ½"THICK 1 ½"× 1 ½" SQUARE MESH	L0	20	350
ISO resin FRP molded 1" THICK 1 ½"× 1 ½" SQUARE MESH	L0	20	400
Ortho resin FRP molded 2" THICK 2"× 2" SQUARE MESH	L0	20	450
Ortho resin FRP molded 1" THICK 1 ½"× 1 ½" SQUARE MESH	L0	20	400
Ortho resin FRP molded 1½″ THICK,1½″ × 1½″ SQUARE MESH	L0	15	250
ISO resin FRP molded 1½″ THICK,1½″ × 1½″ SQUARE MESH	L0	15	400
ISO resin pultruded grating I6015,1 ½" THICK 60% OPENING	L0	15	350
Vinyl resin pultruded grating I6015,1 ½" THICK 60% OPENING	L0	15	350
Phenolic resin pultruded grating I6015,1 ½" THICK 60% OPENING	L0	5	55

Product	Structural Fire Integrity Level (ASTM F3059)	Flame Spread Index (ASTM E84)	Smoke Developed Index (ASTM E84)	Span [mm]
Phenolic resin FRP molded 1½″ THICK,1½″ × 1½″ SQUARE MESH	L2	5	25	1117.6

Application/Limitation

The FRP grating is only evaluated in accordance with fire technical requirements. Other requirements such as strength etc. has to be evaluated in each case.

The FRP grating is for use in locations according to the below Structural Fire Integrity Matrix.

Structural Fire Integrity Matrix (ASTM F3059-18):

Location	Service	Fire Integrity
Machinery Spaces	Walkways or areas which may be used for escape, or access for firefighting, emergency operation or rescue	$L1_A$
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	L3
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms or access areas	L1
Cargo Holds	Walkways or areas which may be used for escape, or access for firefighting, emergency operation or rescue	L1
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	L0
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	$L0_B$
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	L0
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	L0

Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms or access areas	$L0_C$
Accommodation, service, and control spaces	All personnel walkways, catwalks, ladders, platforms or access areas	Not permitted
Lifeboat embarkation or temporary safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms or access areas	L2
Open Decks or semi-enclosed areas	Operational areas and access routes for deck foam firefighting systems on tank vessels	L2
	Walkways and areas that may be used for escape, or access for firefighting systems and AFFF hose reels, emergency operation, or rescue on MODUs and production platforms including safe access to tanker bows	$L2_D$
	Walkways or areas that may be used for escape or access for firefighting, emergency operation or rescue other than those used above	L3
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	L3
	Gangway for safe access to bow on tankers according to IMO MSC.62(67)	$L2_E$

Footnote:

A. If machinery space does not contain any internal combustion machinery, other oil burning, oil heating or oil pumping units, fuel oil filling stations, or other potential hydrocarbon fire sources and has mot more than 2.5 kg/m2 of combustible storage, gratings of L3 integrity may be used in lieu of L1.
B. Gratings that are electrically conductive shall be required. Acceptance criteria for resistance per unit length and to earth is: < 0.1 M Ω to earth. Test standard ASTM D257-91, ref. DNV–CP-0070 “Fibre reinforced thermosetting plastic piping systems - Non-metallic materials”.
C. For passenger ships required to meet the safe return to port regulations, MSC.1/Circ.1369 Interpretation No. 8 to be specially considered to determine if it is a space in which the risk of a fire originating is negligible or not.
D. Tested with furnace temperature curve according to ASTM E119 (i.e. not tested for Hydrocarbon or Jet fire exposure).
E. Also required to be tested according to IMO 2010 FTP Code Part 5 and 2 for floor covering (IMO MSC.1/Circ.1504).

This Certificate does not cover testing of the FRP grating subjected to Hydrocarbon or Jet fire exposure. DNV recommend that for any area where FRP grating is arranged and with possible exposure to Hydrocarbon or Jet fire, Risk Assessment is conducted to ensure that the use of FRP does not have any negative effect with respect to Escape, Safe Evacuation, Firefighting and Escalation of the original fire incident.

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

Type Approval documentation

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

Test report No. XMHL241000765701SD dated 7 November 2024 from SGS-CSTC Standards Technical Services, Xiamen Branch, China.
Test report No. XMHL241000765601SD dated 7 November 2024 from SGS-CSTC Standards Technical Services, Xiamen Branch, China.
Test report No. XMHL241000765201SD dated 7 November 2024 from SGS-CSTC Standards Technical Services, Xiamen Branch, China.
Test report No. XMHL241000765101SD dated 7 November 2024 from SGS-CSTC Standards Technical Services, Xiamen Branch, China.
Test report No. XMHL241000712701SD dated 25 October 2024 from SGS-CSTC Standards Technical Services, Xiamen Branch, China.

Test report No .XMHL241100836401SD dated 5 December 2024 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.
Test report No. XMHL241100836501SD dated 5 December 2024 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.
Test report No.XMHL241100779801SD dated 18 November 2024 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.
Test report No.XMHL241100780301SD dated 18 November 2024 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.
Test report No.XMHL241100836301SD dated 5 December 2024 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.

Test report No.XMHL241100836601SD dated 5 December 2024 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.
Test report No.XMHL250300178901SD dated 15 April 2025 from SGS-CSTC Standards Technical Service, Xiamen Branch, China.

Tests carried out
Tested according to ASTM E-84-2024.

Marking of product
Each FRP grating shall be marked as a minimum with the brand and the appropriate fire rating (L1, L2, L3 or L0). The label shall be molded into the grating or included on a permanently attached label.

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.

Manufactured by:
Nantong Drayson Composite Material Co., Ltd. No.671 Hedong North Road, Chongchuan District, Nantong, China.