



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **F-20414**

This is to certify that the
FRP Grating

with type designation(s)
PPH 1-1/2" I-60 and MPH 1-1/2" x 1-1/2" x 6" RM

Manufactured by
Chinagrate Composite Structures (Nantong) Co.,Ltd.
Nantong, China

is found to comply with
Det Norske Veritas' Interpretation of SOLAS 1974 Convention as Amended
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Rules for Classification of Ships

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

This Certificate is valid until **2016-12-31**.

Issued at **Høvik** on **2013-04-03**

for **Det Norske Veritas AS**

DNV local station: **Nantong**

Approval Engineer: **Martin Gjelstad**

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Petter Langnes
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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

“PPH 1-1/2" I-60”

pultruded phenolic fiberglass reinforced plastic grating coated with a skid resistant coating (from Changzhou Paint and Coating Industry Research Institute) on exposed side.

Max unsupported span is 1120 mm.

“MPH 1-1/2" x 1-1/2" x 6" RM”

moulded phenolic fiberglass reinforced plastic grating coated with a skid resistant coating (from Changzhou Paint and Coating Industry Research Institute) on exposed side.

Max unsupported span is 1120 mm.

Tests results according to ASTM E84-04:

Product	Flame Spread Index	Smoke Developed Index
PPH 1-1/2" I-60	10	120
MPH 1-1/2" x 1-1/2" x 6" RM	10	20

Application/Limitation

For use in locations according to the below Structural Fire Integrity Matrix.

Structural Fire Integrity Matrix.

Location	Service	PPH 1-1/2" I-60 and MPH 1-1/2" x 1-1/2" x 6" RM
Machinery Spaces	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO (YES, if Condition 1) is met. (See next page))
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms or access areas	NO
Cargo Holds	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES, if Conditions 2) and 3) are met. (See next page.)
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES, if Condition 2) is met. (See next page.)
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES
Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms or access areas	YES

(Table continues on next page.)

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Location	Service	PPH 1-1/2" I-60 and MPH 1-1/2" x 1-1/2" x 6" RM
Accommodation, service, and control spaces	All personnel walkways, catwalks, ladders, platforms or access areas	NO
Lifeboat embarkation or temporary safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms or access areas	YES
Open Decks or semi-enclosed areas	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	YES
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES
	Gangway for safe access to bow on tankers according to IMO MSC.62(67)	YES

Condition 1) 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 not more than 2.5 kg/m² of combustible storage.

Condition 2) Only if these spaces are normally **not** entered when underway.

Condition 3) Gratings that are electrically conductive shall be required. Acceptance criteria for resistance per unit length and to earth is: < 0,1 M Ω/m and < 1 M Ω to earth. Test Standard ASTM D257-91 (Ref. DNV TA 1-501-1 (Fibre reinforced Thermosetting Plastic Pipes)).

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.

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

Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, April 2009.

Test report No's. 17170-124579 dated 02 June 2005, 17170-124581 dated 02 June 2005 and 17170-124582 dated 09 May 2005. All reports from Omega Point Laboratories Inc., San Mateo, California.

Tests carried out

Tested according to ASTM E-84-04 and USCG Memorandum PFM 2-98.

Marking of product

The product or packing is to be marked with name of manufacturer and type designation.

Certificate Retention Survey

Det Norske Veritas' surveyor is to be given permission to perform Certification Retention Surveys at any time during the validity period of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Standard for Certification No. 1.2 item 4.