

TYPE APPROVAL CERTIFICATE

This is to certify:**That the FRP Grating**with type designation(s)
Duragrid Phenolic

Issued to

Strongwell Chatfield Division
Chatfield, MN, USAis found to comply with
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL rules for classification – Ships
DNV GL offshore standards**Application :****For use in locations according to enclosed Structural Fire Integrity Matrix.****Application is to be considered and accepted for each case/project.**Issued at **Høvik** on **2019-01-18**for **DNV GL**This Certificate is valid until **2020-12-31**.DNV GL local station: **Houston**Approval Engineer: **Helge Bjørnarå**

Mårten Schei-Nilsson
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.



Job Id: **262.1-004139-7**
 Certificate No: **TAF00000EF**
 Revision No: **2**

Product description

Duragrid Phenolic,
 38 mm to 45 mm fibre reinforced pultruded gratings, with maximum allowable free span of 1120 mm and maximum bearing bar spacing of 38 mm on centre.

Structural Fire Integrity Level: L2 (may be used where fire integrity L2, L3 and L0 are acceptable)

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 F3059-15)

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
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 _C
	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 _D

Footnote:

- 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, gratings of L3 integrity may be used in lieu of L1.
- 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 GL-CP-0070 "Fibre reinforced thermosetting plastic piping systems - Non-metallic materials"
- Tested with furnace temperature curve according to ASTM E119 (i.e. not tested for Hydrocarbon or Jet fire exposure).
- Also tested according to IMO 2010 FTP Code Part 5 and 2.

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This Certificate does not cover testing of the FRP grating subjected to Hydrocarbon or Jet fire exposure. DNV GL 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 DNVGL-CP-0338, September 2018.

Product	Test Standard	Test report No.	Date	Tested by
Duragrid Phenolic Grating I6000, 38 mm (uncoated)	ASTM E84	102429778SAT-003B, Rev.1	2016-02-05	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 38 mm (coated, standard grit)	ASTM E84	102429778SAT-003A, Rev.1	2016-02-05	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 38 mm (uncoated)	ASTM F3059	102299027SAT-003A	2015-11-25	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 38 mm (coated, standard grit)	IMO 2010 FTP Code Part 5	103131845SAT-002A	2017-07-26	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 38 mm (coated, standard grit)	IMO 2010 FTP Code Part 2	103131845MID-001, Rev.1	2017-08-01	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 45 mm (uncoated)	ASTM E84	101547766SAT-001E	2014-05-30	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 45 mm (coated, standard grit)	ASTM E84	102337218SAT-001A	2015-11-12	Intertek Testing Services NA Inc., Elmendorf, Texas, USA
Duragrid Phenolic Grating I6000, 45 mm (uncoated)	USCG 2-98-2	01.14431.01.309	2009-02-18	SwRI, Houston, Texas, USA

Tests carried out

ASTM F3059, ASTM E84, IMO 2010 FTP Code Part 5 and 2 and USCG 2-98-2

Structural fire integrity was tested with furnace temperature curve according to ASTM E119.

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 moulded into the grating or included on a permanently attached label.

Periodical assessment

DNV GL'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 DNVGL-CP-0338, Section 4.