

TYPE APPROVAL CERTIFICATE

This is to certify:**That the FRP Grating**

with type designation(s)

**Reinforced Plastic Molded Grating (Vicorr, ELS, Corvex, XFR), Pultruded ISO FR Grating,
Fibergrate Safe-T-Span I 6015-P Phenolic Grating**

Issued to

**Fibergrate Composite Structures
STEPHENVILLE TX, United States**

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.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.**This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2015-08-28**DNV GL local station: **Houston**for **DNV GL**Approval Engineer: **Synnøve Bolstad Eri**

**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.

Job Id: **262.1-001599-5**
Certificate No: **TAF000003C**

Product description

"Reinforced Plastic Molded Grating (Vicorr, Corvex, ELS, XFR)"
molded fiberglass grating using vinyl ester- or isophthalic polyester resins.

Product name (ref. test report)	Flame Spread Index	Smoke Developed Index	Weight [Kg/m ²]
Fibergrate Vicorr Molded Grating	20	300	12.2 - 24.4
Fibergrate Corvex Molded Grating	25	350	12.2 - 24.4
ELS	20	70	12.2 - 24.4
Fibergrate XFR Molded Grating	10	800	12.2 - 24.4

"Pultruded ISO FR Grating"
pultruded fiberglass grating using ISOFR resin system (isophthalic polyester).

Product name (ref. test report)	Flame Spread Index	Smoke Developed Index	Weight [Kg/m ²]
Dynaform Structural Shapes, ISOFR, Nonhalogen	10	550	13.3 - 22.44

"Fibergrate Safe-T-Span I 6015-P Phenolic Grating"
pultruded fiberglass grating using phenolic resin.
Max length of unsupported grating: 1120 mm

Product name (ref. test report)	Flame Spread Index	Smoke Developed Index	Weight [Kg/m ²]
Safe-T-Span 16015-P Fiberglass Pultruded Grating (with grit and painted)	10	300	13.8

Manufactured at the premises of Fibergate Mexico, El Marques, Querretaro, CP. 76246 Mexico.

Application/Limitation

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

Structural Fire Integrity Matrix:

Location	Service	Reinforced Plastic Molded Grating (Vicorr, ELS, Corvex, XFR)	Reinforced Plastic Molded Grating (Corvex)	Pultruded ISO FR Grating	Fibergrate Safe-T-Span I 6015-P Phenolic grating
Machinery Spaces	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO	NO	NO	NO ₍₁₎
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	NO	NO	NO	YES
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms or access areas	NO	NO	NO	NO

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Location	Service	Reinforced Plastic Molded Grating (Vicorr, ELS, XFR)	Reinforced Plastic Molded Grating (Corvex)	Pultruded ISO FR Grating	Fibergrate Safe-T-Span I 6015-P Phenolic grating
Cargo Holds	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO	NO	NO	NO
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES	NO	YES	YES
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES ^(2,4)	YES ^(2,4)	YES ^(2,4)	YES ^(2,4)
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES ⁽²⁾	YES ⁽²⁾	YES ⁽²⁾	YES ⁽²⁾
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES ⁽²⁾	YES ⁽²⁾	YES ⁽²⁾	YES
Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms or access areas	YES ⁽²⁾	YES ⁽²⁾	YES ⁽²⁾	YES
Accommodation, service, and control spaces	All personnel walkways, catwalks, ladders, platforms or access areas	NO	NO	NO	NO
Lifeboat embarkation or temporary safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms or access areas	NO	NO	NO	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	NO	NO	NO	YES
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES	YES	YES	YES
	Gangway for safe access to bow on tankers according to IMO MSC.62(67)	NO	NO	NO	YES

- (1) The machinery space shall **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 shall **not** have more than 2.5 kg/m² of combustible storage.
- (2) Only if these spaces are normally **not** entered when underway.
- (3) Platforms and access serving deck foam fire fighting systems require gratings of L2 integrity.
- (4) 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 grating shall not be installed in areas where it can be exposed to a hydrocarbon fire.

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

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Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, January 2013.

Test report No. 14-06425 dated 27 June 2014 from Commercial Testing Company, Georgia. (**Vicorr**)

Test report No. 14-06426 dated 27 June 2014 from Commercial Testing Company, Georgia. (**Corvex**)

Test report No. 14-09144 dated 15 September 2014 from Commercial Testing Company, Georgia. (**ELS**)

Test report No. 15-07025 dated 29 June 2015 from Commercial Testing Company, Georgia. (**XFR**)

Test report No. 101173130SAT-001A dated 15 May 2013 from Intertek, USA. (**Dynaform Structural Shapes, ISOFR, Nonhalogen**)

Test report No. 101892438SAT-001A dated 6 November 2014 from Intertek, USA. (**Safe-T-Span 16015-P Fiberglass Pultruded Grating**)

Test report No. 3181395SAT-015 Rev. 1 dated 22 January 2010 from Intertek, USA. (**L2 and L3 for 6015/6015P Phenolic grating**)

Tests carried out

Tested according to ASTM E-84-15a/14/13a/12c and USCG Memorandum PFM 2-98.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire-technical rating.

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 Standard for certification No. 1.2 Type Approval Item 4.