



Exploration & Production

GENERAL SPECIFICATION

STRUCTURAL

GS EP STR 902

**Pultruded fire resistant fibre reinforced plastic floor
grating**

00	10/2008	First issue
Rev.	Date	Notes



Contents

1. Scope	4
2. Reference documents.....	4
3. Definitions.....	6
4. Application.....	7
5. Performance Requirements	8
5.1 Grating pattern.....	8
5.2 Design Life.....	8
5.3 Loading and Deflection Limits.....	8
5.4 Skid Resistance and Durability	9
5.5 Ultra-Violet (UV) Resistance.....	9
5.6 Resistance to Chemicals	10
5.7 Fire Performance Requirements.....	10
5.8 Supplementary Performance Requirements.....	10
5.9 Fixings	10
5.10 Penetrations and cut-outs.....	10
5.11 Equipment support.....	11
6. Type Approval	11
7. Quality Assurance Requirements	11
7.1 Quality Control Equipment.....	12
7.2 Quality Control Tests	12
7.3 Visual Inspection.....	13
7.4 Sizes and tolerances	13
7.5 Retest	14
8. Component Marking.....	15
9. Handling, storage and transportation	15
10. Documentation	15
10.1 Manufacturer Pre-qualification.....	15



10.2	Production Quality Control Documentation.....	15
10.3	Installation Documentation, Safety and Training	16
11.	Spares	16
Appendix 1	Extract from USCG Fire Test Requirements.....	17

1. Scope

This document defines the requirements for pultruded fire resistant fibre reinforced phenolic floor grating for use in external parts of an offshore installation (fixed or floating).

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

The latest revisions of the following codes and standards shall apply to the supply of materials within the scope of the present specification.

Standards

Reference	Title
ASTM C 177	Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus
ASTM D 256	Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
ASTM D 635	Standard Test Methods for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
ASTM D 638	Standard Test Methods for Tensile Properties of Plastics
ASTM D 695	Standard Test Methods for Compressive Properties of rigid Plastics
ASTM D 790	Standard Test Methods for Flexural Properties of Un-reinforced and Reinforced Plastics
ASTM D2047	Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
ASTM D 2343	Test for tensile properties of glass fiber strands, yarns and rovings used in reinforced plastics
ASTM D 2471	Test for gel time and peak exothermic temperature of reacting thermosetting resins
ASTM D 2563	Standard Practice for Classifying Visual Defects in Glass Reinforced Plastic Laminate Parts
ASTM D2565	Standard Practice for Xenon Arc Exposure of Plastics Intended for Outdoor Applications
ASTM D 2584	Standard Test Methods for Ignition Loss of Cured Reinforced Resins
ASTM D 2863	Standard Test Methods for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)
ASTM D 3359	Standard Test Methods for Measuring Adhesion by Tape Test



Reference	Title
ASTM D 4060	Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
ASTM D 5028	Standard Test Methods for Curing Properties of Pultrusion Resins by Thermal Analysis
ASTM E 84	Standard Test Methods for Surface Burning Characteristics of Building Materials
ASTM E 119	Standard Test Methods of Fire Tests of Building Construction and Materials
API RP2A-WSD	Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms - Working Stress Design
BS 4592-4	Industrial type flooring, walkways and stair treads - Part 4: Specification for glass reinforced plastic open bar gratings
IMO A653 (16)	Recommendation on Improved Fire Test Procedures for Surface Flammability of Bulkhead, Ceiling and Deck Finish Materials
ISO 9001	Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation, and Servicing
ISO 14122-2	Safety of machinery - Permanent means of access to machines - Part 2: Working platforms and walkways
ISO 14122-3	Safety of machinery - Permanent means of access to machines - Part 3: Stairways, stepladders and guard-rails
Underwriters Laboratory, UL-94	Standard Safety Test for Flammability of Plastic Materials for Parts in Devices and Appliances

Professional Documents

Reference	Title
University of Houston's Composites Engineering and Applications Center, CEAC-GL-2003-0102	Fiber Reinforced Plastic (FRP) Grating - Procurement Specification



Regulations

Reference	Title
United States Coast Guard (USCG) Policy File Memorandum PFM 2-98 US Department of Transportation Marine Safety Manual Vol. II	Use of Fiber Reinforced Plastic (FRP) Grating and Cable Trays Para. 5.C.6, Fiber Reinforced Plastic (FRP) grating

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP STR 102	Design of offshore topside structure
GS EP STR 901	Design rules and construction standards for ancillary structures of offshore installations
GS EP SAF 351	Escape, evacuation and rescue from fixed installations

If there is an inconsistency between this specification and one of these codes or standards, the Manufacturer must inform the COMPANY who will decide; it is understood that in this case, the more stringent requirement shall be assumed to apply in the absence of formal approval by the COMPANY.

3. Definitions

For purposes of this specification the following definitions apply:

- **Buyer:** The purchaser of FRP products according to the COMPANY's requirements. The term "Buyer" may be considered synonymous with CONTRACTOR or package VENDOR.
- **COMPANY:** as defined in the main CONTRACT documents. The term "Owner", or other equivalent terms, which may be used in some of the reference documents is synonymous with COMPANY.