Company Name Details

Company Information	Additional Company / Plant Detail	Confirmation of Type Approval
TPR FIBERDUR GMBH & CO. KG INDUSTRIEPARK EMIL MAYRISCH GALILEO-ALLEE 6 D-52457 Germany Tel 49 2464 972-0 Fax 49 2464 972 -115 Email: info@fiberdur.com Website: www.fiberdur.com		22-2342492-PDA

Certificate Number	Category	Expiry Date
22-5410669	RQS	10-AUG-2027

Product	Thermosetting, Fiberglass (FRP) Pipe, Fittings and Joints
Model	Fiberdur EP = GRE system, Fiberdur CS EP = GRE system, Fiberdur VE - GRVE system, Fiberdur CS VE - GRVE system
Endorsements	
Tier	5 - Unit Certification Required
Intended Service	Shipboard Class III Piping Systems Range of Application as per "Fire Endurance Requirement Matrix" Table 1 in 4-6-3 of the ABS Marine Vessel Rules e.g. notation "L3" or "0". Non conductive types above are not to be installed in hazardous areas and are not to convey fluids with a conductivity less than 1000 pico siemens per meter.
Description	All pipes and fittings noted are made from the composite material, conductive (Navicon) and non-conductive, filament wound fiber reinforced thermosetting epoxy resin matrix: Epoxy(EP) or Vinylester(VE) resin. Fiberdur EP = GRE system has an additional liner Of 0.5 mm. Fiberdur CS EP = GRE system has an additional liner Of 2.5 mm. Fiberdur VE = GRVE system has an additional liner Of 0.5 mm. Fiberdur CS VE = GRVE system has an additional liner Of 2.5 mm. Fittings: Elbows (22,5°, 30°, 45°,60°, 90°), Tees, reducing Tees, Reducers, Flanges. Joining methods: Cylindrical Conical joint and Conical Conical joint.

Ratings	Ratings for EP = GRE: -EP (*) & CS EP (*) ; Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN10, PN16; Temp. Range -50°C t 80 °C -EP Fibermarine (*) & CS EP Fibermarine (*); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN10, PN16; Temp. Range -50°C t 80 °C -EP Fibermarine HighLine (*) & CS EP Fibermarine HighLine (*); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN16; Temp. Range -50 °C t 80 °C -EP Fibermarine conductive (Navicon) & CS EP Fibermarine conductive (Navicon) ; Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN10, PN16; Temp. Range -50°C t 80 °C -EP Fibermarine HighLine conductive (Navicon) & CS EP Fibermarine HighLine conductive (Navicon); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN16; Temp. Range -50 °C t 80 °C Ratings for VE = GRVE: -VE (*) & CS VE (*) ; Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN10, PN16; Temp. Range -50 °C t 65 °C -VE Fibermarine (*) & CS VE Fibermarine (*); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN10, PN16; Temp. Range -50 °C t 65 °C -VE Fibermarine HighLine (*) & CS VE Fibermarine HighLine (*); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN16; Temp. Range -50 °C t 65 °C -VE Fibermarine conductive (Navicon) & CS VE Fibermarine conductive (Navicon); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN10, PN16; Temp. Range -50 °C t 65 °C -VE Fibermarine HighLine conductive (Navicon) & CS VE Fibermarine HighLine conductive (Navicon); Nom. Diameter 25 mm - 1000 mm; Nom. Pressure PN16; Temp. Range -50 °C t 65 °C For higher temperatures maximum working pressure to be reduced as per manufacturers catalogue. External Pressure as per Manufacturers specification (SF=3) against collapse test pressure. (*) conductive (Navicon) and non-conductive
Service Restrictions	Unit Certification is required for this product according to 4-1-1/Table 6, Item 14 of ABS Marine Vessel Rules. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined. The Pipes are not to be installed in spaces, where a fire endurance test "L1" or "L2" is required in the Fire Endurance Requirement Matrix,4-6-3/ Table 1 of ABS Marine Vessel Rules. The Materials have been tested according to ASTM D635. Acceptance of these alternative flame spread tests for pipes installation in areas, requiring low flame spread characteristics, is subject to the relevant flag state Administration requirements. Also additional smoke and toxicity test requirements are subject to the relevant flag state Administration. Further, non conductive type pipes are not to be installed in hazardous areas.
Comments	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The installation of the piping systems is to be carried out by qualified personnel in accordance with the manufacturer' s specifications and instructions. Each particular application and installation is to be specifically ABS approved in conjunction with the relevant piping system. External pressure is to be considered in each case in accordance with 4-6-3/5.3 of ABS Marine Vessel Rules. Plastic pipes are to be permanently marked with identification in accordance with a recognized standard. Identification is to include pressure ratings, design standard as indicated in 4-6-3/5.17 of of ABS Marine Vessel Rules. Acceptability of flame-spread tests performed in accordance with ASTM D635 may be subject to approval by the Administration of the vessel' s Registry. ABS piping systems are to be subject to a hydrostatic test pressure of not less than 1.5 times the design pressure to the satisfaction of the attending Surveyor in accordance with 4-6-3/19 of of ABS Marine Vessel Rules. Not to be installed in areas classified as "hazardous" by 4-8-4/27.3 of ABS Marine Vessel Rules.

Notes, Drawing and Documentation	See Attachment.
Term of Validity	This Product Design Assessment (PDA) Certificate remains valid until 15/Jan/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first). Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.
ABS Rules	This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client. 2023 Rules for Conditions of Classification: 1-1-4/7.7, 1-1-A3 and A4, which covers the following: 2023 Rules for Building and Classing Marine Vessels: 4-1-1, 4-6-3, 4-8-4 2023 Rules for Conditions of Classification - Offshore Units and Structures: 1-1-4/9.7, 1-1-A2 and A3, which covers the following: 2023 Rules for Building and Classing Mobile Offshore Units: 4-2-2/7
National Standard	NA
International Standard	NA
Government Standard	NA
EUMED Standard	NA
Others Standard	NA

Model Certificate	Model Certificate #	Issue Date	Expiry Date
PDA	22-2342492-PDA	16-JAN-2023	15-JAN-2028