

DIN EN 1447	Plastics piping systems – Glass-reinforced thermosetting plastics (GRP) pipes – Determination of long-term resistance to internal pressure
ASTM C-581	Standard Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass-Fibre-Reinforced Structures Intended for Liquid Service
ASTM D3681	Standard Test Method for Chemical Resistance of “Fiberglass(Glass–Fibre–Reinforced Thermosetting-Resin) Pipe in a Deflected Condition
DIN 53769	Testing of glass fibre reinforced plastics pipes; determination of the longitudinal shear strength of type B pipe fittings
ASTM D2992	Standard Practice for Obtaining Hydrostatic or Pressure Design Basis for “Fiberglass” (Glass-Fibre-Reinforced Thermosetting-Resin) Pipe and Fittings

18.1.4 Submittals

18.1.4.1 Products and Materials Approval

In order to verify compliance with the specification the Contractor shall submit information for all products and materials used in the Works to the Engineer for approval sufficiently in advance of their use in accordance with the Contract programme allowing for ordering and approval times. Reference shall also be made to Section 01600 of the specification on products and materials approval. Information to be submitted shall comprise but not necessarily be limited to:

- i. The manufacturers design calculations, complete and detailed specification, standard Quality Control test results including the latest Type Tests (Long Term test) results not later than three years from the date of approval submission of the proposed GRP pipes and fittings required for the Works including Manufacturers Certificates of compliance with this section of the standard specification. Information on all items listed in Table 18.1 below shall be given.
- ii. Should any details, including materials of the pipes and fittings be altered in any way during manufacture from those proposed and approved by the Engineer, submit for the Engineer's approval the