SINCE 2009

Poly Fibre®
World

POLY FIBRE
PRODUCT
SPECIFICATION
CATALOGUE

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MAKE IN INDIA | AatmaNirbharBharat | EXPORT QUALITY

ABOUT POLY FIBRE

An amalgamation of polyester resin and fibre glass, Poly Fibre offers a better decor choice & customization flexibility over Wood and Cast Iron. Poly Fibre Polymer Product is a strong and flexible composite material made up of polymer matrix, which is, in turn, made with fibreglass.

BENEFICIAL PROPERTIES

- High strength-to-weight ratio.
- Most flexible material for intricate designs
- Highly weather-resistant than wood or cast iron
- Can withstand a lot of wear and tear
- 10 Years Warranty (Lifespan of 25+ Years)
- Ready to Install (Modular Structures)
- Natural Finish & Cast Iron Looks (Maintenance-Free)
- No Civil Work (Good for non-construction Zones)
- Cost-Effective (Value for Money)

ABOUT US - POLY FIBRE WORLD

Decorating your world beautifully with exclusive Poly Fibre products!

We are the formulation experts of resin-bolstering in India. We manufacture a wide range of Poly Fibre products to beautify your interior & exterior decor/landscape effortlessly & economically. Poly Fibre World is the architectural design & manufacturing brand.

- **14+ years Expertise**
- **200+ Concepts & Designs**
- **750+ Clients served**

Poly Fibre simulates wood-looks with 25+ years of stunning performance.

Our diverse Product Range

- Garden Decor Gazebos-Pergolas
- Architectural Decor - Jalis
- 30+ Landscaping Products

TECHNICAL PROPOSAL
OF POLY FIBRE STRUCTURE

S. No.	Particulars	Remarks
1.	The Client attention is drawn to clause 2 of the Employer's Requirements. General and to clause 1 of the General conditions of Contract in which terms are defined	Noted
2.	Client's Technical Proposals shall comply or, subject to reasonable development, be capable of complying with the Employers Requirements in all respect. The Client's Technical Proposals shall demonstrate such compliance. The Client's Technical Proposal shall establish firmly the intended methodology and in accordance the specifications for the permanent works	Noted
3.	The Client's Technical Proposal shall cover the detailed work procedure that day wish to purpose for this project along with all tests, investigations, methods of water proofing etc. as required	Noted and as per Annexure No. 1 to 4 enclosed
4.	The Manufacturer Technical Proposals shall include the following documents	
4.1	**DRAWINGS :**	
	Drawing shall illustrate, where appropriate, aspects of the works identified in paragraph 3 above, including layout appearance, main structural features, general arrangements, plans, elevations, principal sections and typical details of critical areas. In particulars the drawings shall indicate the proposed arrangement at the interface with adjacent contractors	Drawing attached
4.2	**Specifications**	
4.2.1	The specifications shall comprise of constructions specification which shall consist of the outline specification which shall be identical to those contained in the document and a particular specification. The particular specification shall draw attention to any part of the outline specification which the contractor intends to amends or omit and shall contain further material such that the design of the temporary work is fully specified and the construction of the permanent works is specified at least in outline at this stage	Poly Fibre Panel specification is as per Annexure No. 1 to 3, the copy of which is enclosed herewith.

S. No.	Particulars	Remarks
4.2.2	In producing the particular specifications the Client shall insure that clauses, paragraphs and any appendices there in are identified by there numbering as uniquely belonging to the particular specifications, and shall not in any event amend or change the numbering in the outline specifications	As per the Annexure No. 1 to 3, copy enclosed herewith
4.2.3	The Client should note that the specifications submitted with the document as part of the contractor's technical proposals will, prior to acceptance of document, be merged and consolidation in to a single document for incorporation in to the contract	Noted
4.2.4	The Client should note that the particular specifications form a crucial part of the contractor's Technical proposals, and shall be prepared in sufficient detail to demonstrate full compliance with the employer's requirements. The quality of the particular specifications will be paramount in evaluating technical compliance of documents	Noted
4.3	A joint statement from the Client and the proposed designer is required to be furnished to the effect that the contractor's technical proposals comply with the employer's requirements and can be developed to become the definitive design of the permanent works without significant change other than amplifications	Shall be submitted at the time of execution of the work
4.4	**Statement of maintainability** The Client shall the maintenance objectives and the anticipated operational life associated with the principal elements and components of the permanent works and in particular how these apply in the selection and use of proposed materials. The Client shall demonstrate a reasonable balance between construction costs of the permanent works. The Client shall include in the permanent works. The Client shall include in this statement a schedule of the main maintenance operations, for each major component of station structures etc. including intervals between such operations, for all aspects of the required constructions and of main spares and shores required and their rates of use	5 Years Warranty of Breakage

S. No.	Particulars	Remarks
5.	The document shall be accompanied by documents in amplification of the contractor's Technical Proposals, which shall include	Noted
5.1	**Technical Notes** Such technical notes or notes on calculations necessary for understanding and explaining the contractor's Technical Proposals	As per Annexure No- 1 to 3 enclosed
5.2	**Site Investigation Proposals** Results of any site investigations undertaken by the Client and proposals for site investigations to be undertaken by the contractor giving the nature of the investigations, locations and intended purposes	Taken into consideration
5.3	**Testing Proposals** Results of any testing undertaken by the Client and proposals for other testing to be carried out by the contractor for design or associated purposes (not including control of quality of construction, fabrication or manufacture), giving the nature of the testing, intended purposes and the location of the test facilities used or to be used	As per the Annexure No-4, Copy of which enclosed herewith
5.4	**Codes and standards** A list of all codes of practise and standards to be used in the design shall be provided. Except for those codes and standards available in Hindi, all other codes and standards shall be available in certified English translation. The Client shall provide justification for any codes and standards it proposes in its list as alternatives and additions to those specified in the Employer's requirements. Outline design specification and outline construction specification. The Client will be required during the document process on provide a certified English translation for any codes and standards to use and which are not normally available in English	As per the Annexure No-4, Copy of which enclosed herewith

ANNEXURE NO.1
TERMINOLOGY OF POLY FIBRE PRODUCTS

S. No.	Particulars
1.	**Aggregate defects:** Presence of impurities such as pin holes, impurities and traces of mending more than 5 each in aggregate for defects at localized place.
2.	**Colour Blots:** Colour blots occurring an account of uneven distribution of colouring material
3.	**Crazing:** Fine hair cracks on the surface
4.	**Defective Impregnation:** Imperfect impregnation of glass fibre with unsaturated polyester resin
5.	**Gelcoat:** A coat of Isophthalic resin ultra violet stabilised fire retardant quality mixed with 15% by weight, aerosol powder (500 micron ground silica) suitably formulated to high viscosity given to provide a smooth glossy finish
6.	**Impurities:** Foreign matter present other than specified
7.	**Laminate:** A reinforced resin sheet or moulding
8.	**Pinholes:** Pores of size less than 1 mm appearing on the surface
9.	**Small Pores:** Pores of size more than 1 mm appearing on the surface
10.	**Wrinkling:** Wrinkled finish on Gelcoat surface due to under curing

ANNEXURE NO. 2

GENERAL SPECIFICATION OF THE MATERIAL USED FOR POLY FIBRE PRODUCTS

S. No.	Particulars
1.	Glass fibre chopped strands MAT (CSM) as res ISI-11551-1986
2.	Glass Fibre Roving as per ISI-11320-1985
3.	Isophthalic resin as per ISI-6746-1972
4.	Catalyst Methyl Ethyl Peroxide (MEKP)
5.	Accelerator used will be Cobalt Napthalate
6.	Permissible Fillers are Calcium Carbonate Powder
7.	UV Pigments
8.	PVA (Poly vinyl alcohol) and wax as releasing agent
9.	Mould releaser
10.	FRP Machine made rod
11.	Glass fibre chopped strands MAT (CSM)
12.	The glass fibre rovings used shall be as per IS: 11551-1986
13.	Glass Fibre Rovings
14.	The glass fibre rovings used shall be as per IS: 11320-1985
15.	Isophthalic Resin
16.	Isophthalic resin shall be of fire retardant grade as per IS: 6746-1972
17.	Curing Agents
18.	Catalyst used shall be Methyl Ethyl Ketone Peroxide (MEKP)
19.	Accelerator shall be used Cobalt Napthalate
20.	Fibres and Additives
21.	Permissible Fillers are French chalk powder (Talc) and Calcium Carbonate
22.	Antimony Trioxide, minimum 5% by weight of isophthalic resin, shall be used for fire retardancy
23.	The filler and additive content shall not exceed 10% by weight of isophthalic resin
24.	Auxiliary Chemical
25.	Polyvinyl Alcohol (PVA) and Wax shall be used as a mould release agent
26.	Pigments
27.	Pigments compatible with isophthalic resin and Gelcoat will be used to get the shad of finish as mutually agreed between the manufacturer and the purchaser

ANNEXURE NO. 3

PROCEDURE OF MANUFACTURING OF POLY FIBRE PRODUCTS

- Applying Polyvinyl Alcohol (PVA) and Wax as a releasing agent on the moulds
- With the help of Gelcoat Sprayer Machine and Chopper Sprayer Machine, a coat of Isophthellic & UV Gelcoat mixed with 15% by weight arcelon powder (500 micrgram Silica) with UV pigments (For resistance against colour fading), suitably formulated to high viscosity is applied at 1000gsm over the moulds in two layers of fibre glass chopped stand matt@ 450gsm (Owens Corning, Binani or Equivalent) in each layer and one layer of Glass roving about 450gsm (For better strength) in order to provide a smooth glossy finish enhancing aesthetic and improved weathering and water resistant property of the Poly Fibre Panel. Poly Fibre machine made Rods/ Bars of minimum dia 5mm shall be placed between the above three layers, if required. All the sections is reinforced by mild steel 100mm X 100mm Square & 80mm x 40mm rectangular hollow sections ISI Mark (Apollo, Prakash or Equivalent). The CSM Matt shall be bounded with Isophthellic FR and UV polyster resin (Ashland, Scott badder or Equivalent) in the ratio not less than 1:2 (One part of CSM Mat to two parts of Isophthellic resins and fibres and additives). The edges shall be sealed with Gelcoat, Resin and CSM to obtain smooth finish. Sufficient 4021 roving shall be laid in the corner to have smooth curve while laying the CSM MATT. 5 year warranty applicable of breakage. with high mechanical strength at room temperature, good properties under all weather conditions
- Release from mould with the help of technical tools and send for trimming and final finishing and polishing with chemical and packing with scratch proof film

ANNEXURE NO. 3

PROCEDURE OF MANUFACTURING OF POLY FIBRE PRODUCTS

- The product is ready for dispatch
- FINISH
- The surface of the Panel shall be free from any visible defects such as small pores, crazing, blistering, wrinkling, impurities, defective impregnation, color blots and aggregates defects
- Scattered pin holes, if any shall be repaired and finished by applying Gelcoat and Resins
- Panel shall be finished in color as required by the principal owner

ANNEXURE NO.4

Table- 3 : TESTS ON FRP PANEL

S. No.	Test	Test Method as per	Acceptable Value
1.	Fibre Glass Content	ISO: 1172-1975	Not less than 25%
2.	Barcol Hardness	ASTM:D2583-1987	Not less than 26 BIU when tested on the face of laminate finished with gelcoat
3.	Ultimate Tensile Unit Strength	BS: 4994-1973	Not less than 150 N/mm per Kg/m2 of glass
4.	Tensile Unit Modulus	ISO: 3268-1978	Not less than 6500N/mm per kg/m2 of glass
5.	Flexural Strength	ISO: 178-1975	Not less than 110 N/mm2
6.	Flexural Modulus	ISO: 175-1975	Not less than 7000 N/mm2
7.	Izod Impect	ISO: 180-1982	Not less than 10 J/cm
8.	Water Absorption after seven days of immersion	ISO: 62-1980	Not less than 0.5% by weight

ANNEXURE NO.4

TYPICAL FIBREGLASS PROPERTIES

Test Method as per	Acceptable Value
Properties of a typical 1/8" glass mat laminate using specific fire retardant resin	
Flexural strength, PSI @ 77 degrees F	28000
Flexural modulus, PSI @ 77 degrees F	1.07 x 106
Elongation	2.2%
Barcol Hardness	45 to 50
Glass Content	21%
Quartz Content	30%
Specific Gravity	1.62
ASTM E-84 (Tunnel Test)	<25
UL Subject 94	V-
Thickness	4.5mm

TESTING LABS Testing of FRP Panel material can be done at the following labs at the following places.

• Shri Ram Lab, Delhi • Indian Institute of Technology, Delhi

Test Method as per	Acceptable Value
Flexural Strength, PSI	16,000 to 32,000
Flexural Modulus, PSI	0.8 to 1.4 X 106
Tensile Strength, PSI	9,000 to 18,000
Tensile Modulus, PSI	0.8 to 1.4 X 106
Elongation	1.0% to 2.5%
Compressive Strength, PSI	15,000 to 25,0000
Impact Strength IZOD, IB.IN. of Notch	4 to 12
Specific Gravity	1.0 to 1.8
Density, IBS./ Ft.3	80 to 110
Continuous Heat Resistance	150 to 350
Thermal Coefficient of Expansion, IN/IN/FX 10-	12 to 20
Barcol Hardness	40 to 60

ANNEXURE NO.5

LIST OF REFERRED INDIAN AND OTHER STANDARDS OF FRP PRODUCTS

Test Method as per	Acceptable Value
IS: 6746-1972	Unsaturated Polyester resin system for low pressure fibre reinforced plastic
IS: 11320-1985	Glass fibre rovinings for reinforcement and of expoxide resin system
IS: 11551-1986	Glass fibre chopped strand mat for the reinforcement of polyester resin system
IS: 12406-1988	Specification for medium density fibre board for general purposes
ISO: 62-1980	Plastic- Determination of water absorption
ISO: 178-1975	Plastic- Determination of flexural properties of rigid plastic
ISO: 180-1982	Plastic- Determination of Izod impact strength of rigid material
ISO: 1172-1975	Textile glass reinforced plastic- Determination of loss on ignition
ISO: 3268-1978	Plastic- Glass reinforced materials- Determination of Tensile properties
BS: 4994-1973	Specification for vessels and tanks in reinforced plastics
ASTM: D2583-1987	Test method for indentation hardness of rigid plastic

SCOPE OF POLY FIBRE PRODUCTS

This specification lays down requirements regarding type, sizes, material, construction, workmanship, finish, performance evaluation, sampling and testing of Fibre Glass Reinforced Polymer products for use in various places i.e. apartments, domestic buildings, offices, schools, hospitals, showrooms, farm houses, parks, etc.

TEST OF POLY FIBRE PRODUCTS

01. Test as per table- 3 shall be conducted on Poly Fibre products (without removing gelcoat) cut from products. The method of carrying out the test shall be as per the reference code mentioned against each test. Acceptable criteria shall be as mentioned against each test.

02. The test as given in table- 4 shall be carried out by the manufacturer on panelled FRP/GRP products. The method of carrying out of the test and acceptability criteria shall be as per IS: 4020-1994

COMPARISON AND ADVANTANGES OF POLY FIBRE OVER G.R.C. AND A.C.P.

POLY FIBRE	G.R.C.	A.C.P.
30% Glass Fibre Reinforcements	4% to 6% Glass Fibre Reinforcements	No Reinforcements
Woven Continues Roving + CSM 35mm length + Polyester Honey Comb	6mm to 10mm length	Nil
Quartz on surface	Limestone and Cement	Aluminum Foil
High abrasion resistance	No abrasion resistance	No abrasion resistance
High impact resistance	Poor impact resistance	No impact resistance
Does not developed fungus	Fungus can develop easily	Does not developed fungus
Can take localized impact	Does not take impact	Does not take impact
Does not absorb moisture	Absorbs moistures	Does not absorb moisture
Available in various natural finishes and textures	Available in stucco only	No natural or texture finish available
Panel thickness 4 to 6mm	13mm minimum (Average 20mm)	3 to 4mm

ANNEXURE NO.5

COMPARISON AND ADVANTANGES OF POLY FIBRE OVER G.R.C. AND A.C.P.

POLY FIBRE	G.R.C.	A.C.P.
16.5 lbs P. Meter Square	85.8 to 221 lbs. P. Meter Square	Weight per meter 8.25lbs P. Meter square
Various colors in same panel	Single color	Single color
Can be stained	Can be stained	Can be stained
Can be directly mounted on brick wall or M.S. frame	Needs RCC structure	Needs M.S. Or Aluminum Frame
Widely used in developed countries	Hardly used in developed countries	Widely used in developed countries
Low installation cost	High installation cost	High installation cost
Easy for fitment	Difficult for fitment due to weight	Difficult for fitment due to extensive metal structure
Low processing time	High processing time	Low processing time
Does not get discolored due to moisture	Can get discolored due to moisture and fungus	Does not get discolored due to moisture
Fire Retardant	Fire Retardant	Flammable

GENERAL SPECIFICATION OF POLY FIBRE PRODUCTS MATERIAL

01	Ultra Violet Stability	FRP/GRP Products is made out of Ultra Violet stability glass fibre reinforced polyester resin with fire retardant, capable of with standing temperatures of -40C to +75C vaccum assisted infusion moulded. Structural members can be made by using sections in various forms with variants of glass fibre continuous or woven roving and polyester honey comb to give added stability, if required. The surface finish is Quartz Crystals or pulverised Sandstone, if required.
02	Paint	Paint is used as the surface finish is Quartz or Pulverized Sandstone. A Protective coating of aliphatic grade 2K polyurethane scratch resistant automotive paint with capacity to withstand -40C to +75C is used
03	Anchoring	POLY FIBRE Products is installed similar Fashion as any dry cladding material like granite and sandstone or with stainless steel dowels. These POLY FIBRE Products are developed to meet international standards and to withstand extreme temperature of North Canada, Alaska and high temperature places like Arozona, Navada and Middle Eastern Asian countries. These are also designed to withstand high wind pressures of coastal states

BENEFIT OF POLY FIBRE PRODUCTS

- POLY FIBRE Products is recreated various material i.e. wood, stone, steel, GRC and ACP available in various finishes and textures
- POLY FIBRE Product is unique product with very high impact and weather resistance. Due to its light weight, large panels can be moulded in various forms and textures. Very intricate forms including undercuts can be managed

RELATIVE ADVANTAGE OF POLY FIBRE

- POLY FIBRE as higher tensile, flexural and impact strength, complete elastic behaviour under stress, impact is absorbed without deformation--considering this GRC is not meant for High Pressure line, Fishing boats, Automotive bodies, Defence applications, Crash helmets etc. no client will ask changer over here
- POLY FIBRE Products are lighter in weight compared to GRC With minimum GRC Panel thickness of 15mm, GRC weight is 30Kg per sqr.mtr, while 3mm GRP weight can be 4.5 to 5Kg per Sqr.mtr, from application point of view GRC is compared with concrete of thickness 100mm or 225kg per sqr.mtr
- POLY FIBRE has higher strength to weight ratio compared to GRC
- POLY FIBRE is structural material while GRC is Non-Structural Cladding material, as material is in use since 1970
- Even through GRC has right properties, nobody goes for slabs or support columns in GRC
- POLY FIBRE has better chemical resistance especially to acids while cement from GRC is affected no GRC application in chemical industry
- POLY FIBRE has no joint issues like GRC

SINCE 2009

Poly Fibre® World

MANUFACTURER
PREMIUM POLY FIBRE LANDSCAPE PRODUCTS

Indoor Experience Centre:
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Outdoor Experience Centre:
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