PIONEERING MATERIAL SCIENCE TO ACHIEVE BREAKTHROUGH SOLUTIONS

- Human Protection
- Industrial Filtration
- Composites

Arvind
Advanced Materials

Arvind Limited, is a textile to retail conglomerate with focus on textiles, apparels, advanced materials, environmental solutions, telecom and Omni-channel commerce.

Arvind, established in 1931, has evolved into a manufacturing powerhouse, specializing in locally produced textile goods. Presently, the conglomerate encompasses four publicly listed entities. Arvind Limited, is a textile to retail conglomerate with focus on textiles, apparels, advanced materials, environmental solutions, telecom and Omni-channel commerce. Arvind Limited is an integrated solutions provider in textiles with strong fibre to fashion capabilities for a global customer base. Arvind Fashions Ltd is India's no. 1 casual and denim player, a lifestyle powerhouse with a strong portfolio of fashion brands catering to consumers across the sub categories and price points. Anup Engineering specializes in crafting heavy-duty process equipment and caters to wide range of process industries including Oil & Gas, Petrochemicals, LNG, Hydrogen, Fertilizers, Chemicals/ Pharmaceuticals, Power, Water, Paper & Pulp and Aerospace with its extensive product range of Heat Exchangers, Reactors, Pressure Vessels, Columns & Towers, Industrial Centrifuges & Formed Components. Arvind Smart Spaces is dedicated to crafting distinctive real estate developments for both residential and commercial purposes. Arvind is celebrated for its inventive products, sustainable practices, and unwavering commitment to environmental and social responsibility, alongside its adherence to robust governance standards and corporate ethics.

$2 Bn
Indian conglomerate

Interests in Textiles, Retail, Advanced materials, Environmental solutions and Real estate

Founded **in 1931** during Swadeshi movement

Among Global **top 5** organized Denim manufactures and pioneers of Denim in India

Own or manage **Many Global** apparel brands in India

Organic Farming Cultivating over **4 lac** acres with **95k+** farmers

Largest Fire Protection Fabric Producer in India

Utilize treated sewage water and boast the largest **Zero Liquid Discharge** plant in Asia

Largest onsite **solar power** generation in India

85 years of innovation and leadership

- **1931** – Laid the foundation of Arvind Mills with a share capital of **~USD 40k**
- **1980** – Sanjay Lalbhai led **Reno-Vision** (entry into international markets; focus on premium fabrics)
- **1991** – **World's 3rd Largest** Denim Producer
- **1998** – Established **India's largest state of the art facility** for shirting, gabardine and knits
- **2000** – Foray into **Garmenting**
- **2003** – JV with **Tommy Hilfiger**
- **2008** – Launch of **Advanced Material Division**
- **2010** – Launch of The **Arvind Store**
- **2014** – Launch of **E-Commerce** Business
- **2015** – Launched **GAP, TCP, Aeropostale Sephora**
- **2016** – Launch of **True Blue** with **Sachin** and India's first Omni- channel
- **2017** – Announced the demerger of **Anup Engineering** and **Arvind Fashion**

Arvind Advanced Materials, a division of Arvind, specializes in the technical textiles sector, encompassing various applications and materials. With a commitment to excellence, Arvind Advanced Materials has established cutting-edge facilities for its diverse operations.

These facilities boast vertical integration, ensuring meticulous control and emphasis on quality throughout the manufacturing process. They hold certifications from global institutions, meeting the rigorous standards expected by both domestic and international clientele.

Spanning across Gujarat, Arvind Advanced Materials operates over 10 state-of-the-art facilities, covering expansive areas. Equipped with top-of-the-line machinery, these facilities feature comprehensive inspection, testing, and product development capabilities. With dedicated in-house teams for innovation and product development, we continually enhance processes and products while fostering collaborations with leading research institutes to co-create novel solutions.

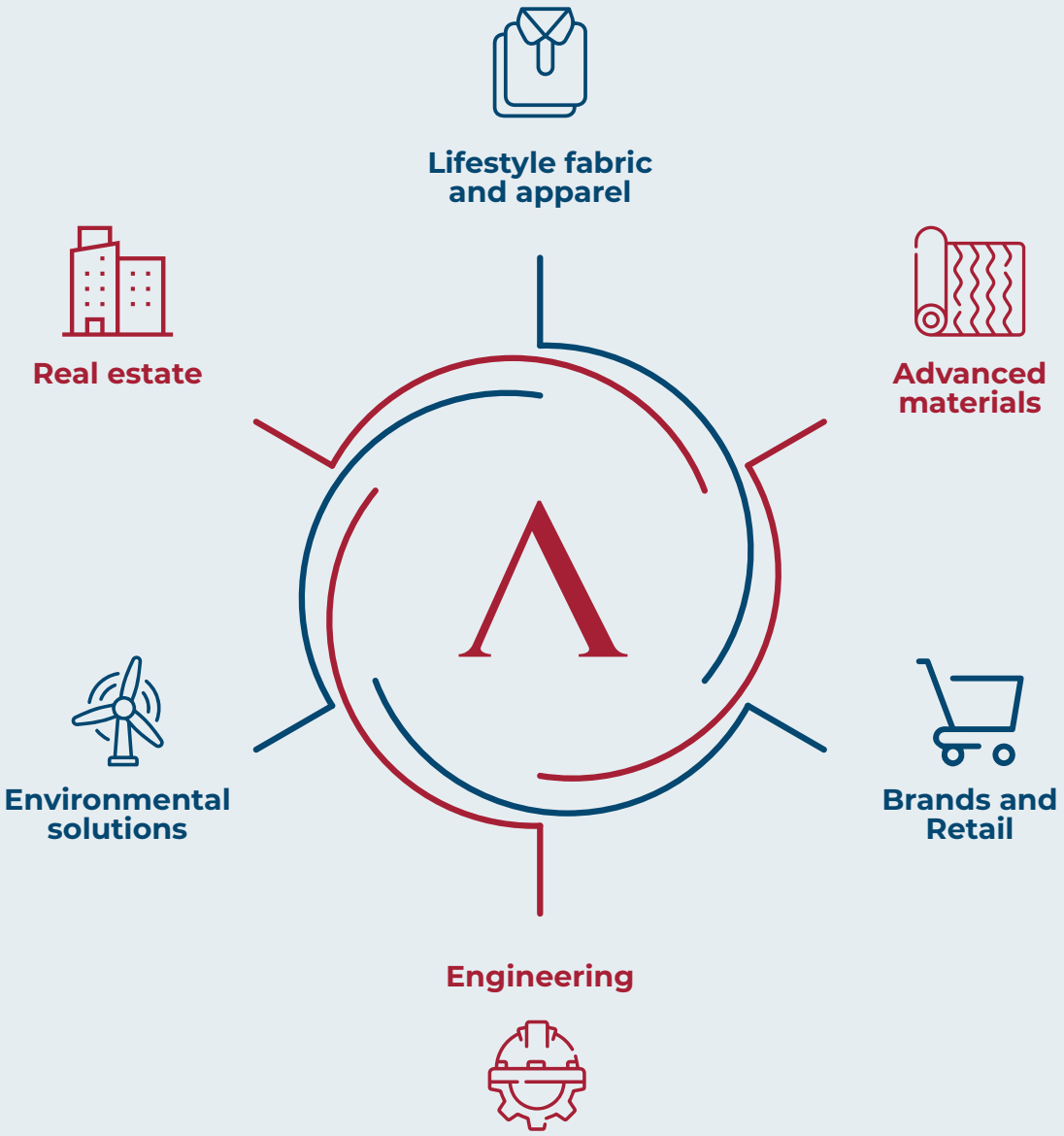
Arvind Advanced Materials operates across three domains:

Human Protection: As one of the world's largest producers of fire-retardant fabrics and garments, we offer technically advanced solutions for diverse applications such as defense, electric arc protection, refineries, fire protection, and high-altitude clothing. Our extensive facilities cover spinning, weaving, specialty finishes, garmenting, and assembly.

Industrial Filtration: With vertically integrated capabilities ranging from needle punch non-wovens upstream to woven and non-woven filtration made-ups mid-stream, we provide end-to-end solutions for various industries requiring filtration.

Composites: Serving as a comprehensive technology and solution provider, we specialize in glass fabric weaving, pultrusion, hand lamination, RTM, filament winding, and prepregs, catering to a wide range of industries and applications.

Business interests include fiber-to-fashion, advanced materials, engineering, environmental solutions and real estate



Arvind Composites

Arvind Composites commenced operations in 2012 with the establishment of a glass fabric weaving facility, marking its initial venture into technical textiles. Subsequently, additions such as Pultrusion, Hand Moulding, Moulded Gratings, Carbon Prepregs, and Continuous Lamination have expanded its capabilities. As a truly global entity, Arvind Composites distributes its products across six continents and numerous countries worldwide. Through strategic partnerships with global experts and specialty firms, we uphold world-class quality standards, integrate state-of-the-art technologies, implement robust quality systems, and employ advanced product development methodologies at our facilities located in western India.

Raw Materials and Technology Expertise

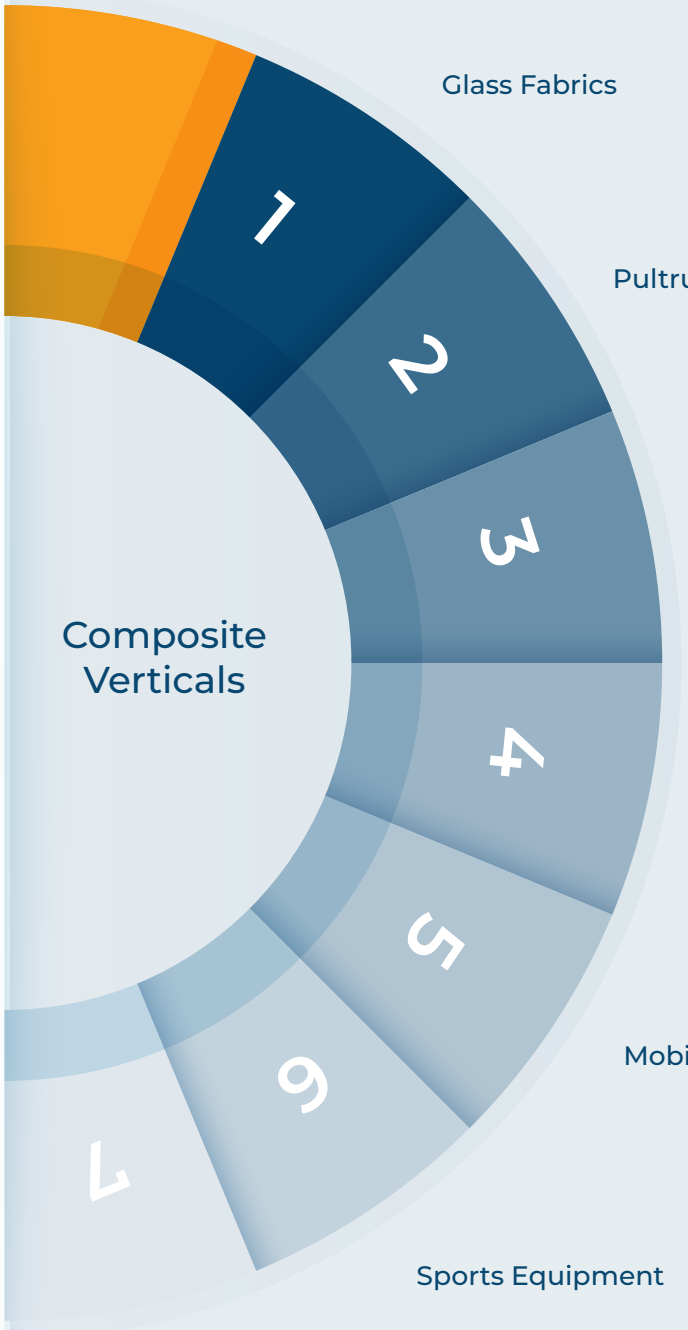
Arvind Composites possesses extensive expertise in handling a diverse range of fibres and resin matrices, including Glass Fibre, Carbon Fibre, Aramid Fibre, and various resin types such as Polyester, Epoxy, and Phenolic. These materials are utilized across different technologies to serve a wide array of end applications. With a comprehensive suite of composite technologies at our disposal, Arvind Composites is positioned as a one-stop solution provider to fulfill our customers' diverse requirements.

Fibre Resin - Application

FIBRE – RESIN	POLYESTER	EPOXY	PHENOLIC
Glass Fibre	• Cooling Tower • Telecommunication • Industrial Composites • Mobility Composites • Roofing Sheets • Construction Composites	Sports Equipment	Mobility Composites
Carbon Fibre		UAV Parts Sports Equipment Mobility Composites UAV Parts	Mobility Composites
Aramid Fibre		Sports Equipment	

Fibre Resin - Technology

FIBRE – RESIN	POLYESTER	EPOXY	PHENOLIC
Glass Fibre	• Pultrusion • Hand Moulding • Continuous Lamination • RTM • Filament Winding • Hand Moulding	Prepregs	Hand Moulding
Carbon Fibre		Filament Winding Prepregs	
Aramid Fibre		Prepregs	



Glass Fabrics

Pultruded Composite Solutions

Hand Moulded Composite Solutions

Continuous Lamination Composites

Mobility Composites

Sports Equipment

UAV parts

Arvind PD Glass Fabrics

Arvind Composites manufactures Glass Fabrics utilizing weaving and stitch fabric technology, equipped with Multi-Axial, Bi-Axial, Malliwat, and Dornier looms, boasting a collective annual capacity of 20,000 tons. These facilities hold certifications from global Wind Energy equipment manufacturers and major industrial clients.

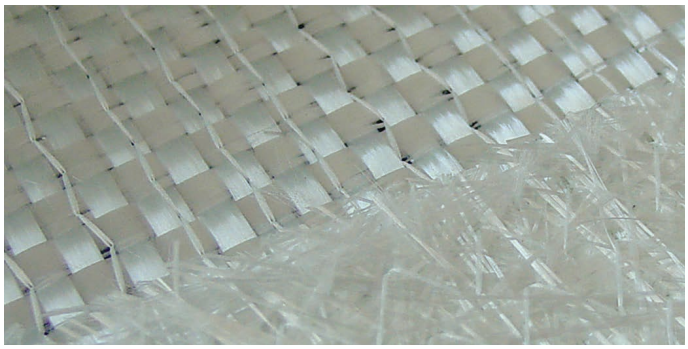
Operated as a joint venture with the Preiss Daimler group, Arvind Composites employs cutting-edge German machinery catering to Wind, Marine, Automotive, and Pultrusion industries. With capabilities to produce rolls weighing up to 3000kg and 1500 meters in length, 410 cm in width, and 3600 GSM in grammage, we ensure superior quality and efficiency.

Arvind PD features extensive testing facilities for analyzing Glass fiber roving properties such as linear density (tex), moisture content, loss on ignition (LOI), and product mass (gsm). Utilizing a custom-built laminating machine based on Vacuum Infusion Technology, we produce high-quality test laminate samples analyzed using advanced scanner and SCADA systems.

Arvind PD's facility holds certifications including ISO 9001, ISO 14001, and OHSAS 18001, with products accredited by Germanischer Lloyd, Lloyd's Register-UK, and IRS certification.

Product Portfolio of Arvind PD Glass Fabrics

- **Glass woven fabrics made from E-glass and ECR-glass direct roving**
  - 220-1500 GSM, 20-400 cm width
  - Bidirectional or Unidirectional (weft- or warp-reinforced)
  - Woven fabric with Glue yarn Leon
  - Different weave patterns- Plain, Twill
- **Multi-axial fabrics in variety of orientations**
  - 200-2400 GSM, 35 to 254 cm width
  - Bidirectional/ Unidirectional/ Clutch
  - Biaxial/ Tri-Axial, Quadrax
- **Complex fabrics - glass roving fabrics stitch bonded with non-woven/ chopped strand matts**
  - 200-350 GSM, in 40-350 cm width
  - Combination Mat, CIPP liner fabric, Reverse stitch fabric
- **Tube fabrics**
  - 80 cm to 300 cm diameter tubes made from fabrics with 0.5mm-4.0mm thickness
  - GSM: 300 to 2400 GSM



Pultruded Composite Solutions

Arvind Composites stands as a premier manufacturer of Pultruded Composite Solutions, boasting an annual capacity of 10,000 tons. Our comprehensive range of pultruded profiles, decks, hand-molded fan-stacks, fan cylinders, and casing panels are trusted by leading cooling tower companies worldwide. We specialize in pultruding thin-walled precise profiles for Radomes and Fan blades, with heavy pultrusions extending up to 50 kg per meter for bridge decks. Our gratings and profiles find applications in diverse building and construction projects, emphasizing corrosion resistance, durability, and structural integrity.

With the capability to produce pultruded FRP products using a variety of reinforcement cores such as glass rovings, carbon fibers, chopped strand mats (CSM), Continuous filament mats (CFM), and Multiaxial fabrics, Arvind Composites excels in developing tailor-made reinforcement systems to complement different resin systems. Our expertise spans various matrix systems including ISO, PTA, Ortho, Vinyl Ester, Epoxy, and blends thereof.

Equipped with advanced fabrication facilities integrating CNC machines and CAD-CAM systems, we deliver fabricated, ready-to-assemble products tailored to customer specifications. For specialized products like x-arm bars and radomes, we provide accessory components like end-caps and foam-inserts as part of fully assembled components or sub-systems.

Arvind Composites boasts a mature Pultrusion facility complemented by fully equipped mechanical and chemical laboratories facilitating comprehensive testing of incoming raw materials and finished outputs. For highly specialized tests, we maintain collaborations with independent testing labs and academic institutions. Our quality assurance team is adept at conducting tests in accordance with various international standards published by CTI, ASTM, ISO, EN, BS, DIN.

Supported by highly qualified design and product development teams, we actively collaborate with customers to provide tailored services while driving our own manufacturing and product development endeavours.

Composite Solutions for Industries

Cooling Tower

From Pultruded profiles to pre-fabricated staircases, Arvind offers a wide array of composite products essential for assembling both wet and dry cooling towers. These products not only adhere to CTI-137 and CTI-124 standards but also cater to specific customer requirements. Our profiles are readily available in major markets, featuring standard dimensions and colors, facilitating swift re-fabrication, repair, and restoration tasks for existing towers. Alternatively, we provide full project supplies directly from our factories to greenfield sites across the globe. In addition to field-erected cooling towers, we also furnish profiles, panels, and fan cylinders for factory-made package cooling towers.

Product Portfolio of Arvind PD Glass Fabrics

- Pultruded structural profiles, decks, and railings
- Fan blades
- Fan stacks and cylinders
- Casing Panels
- Grating covers and platforms
- Filament wound piping
- Stairs/Ladders

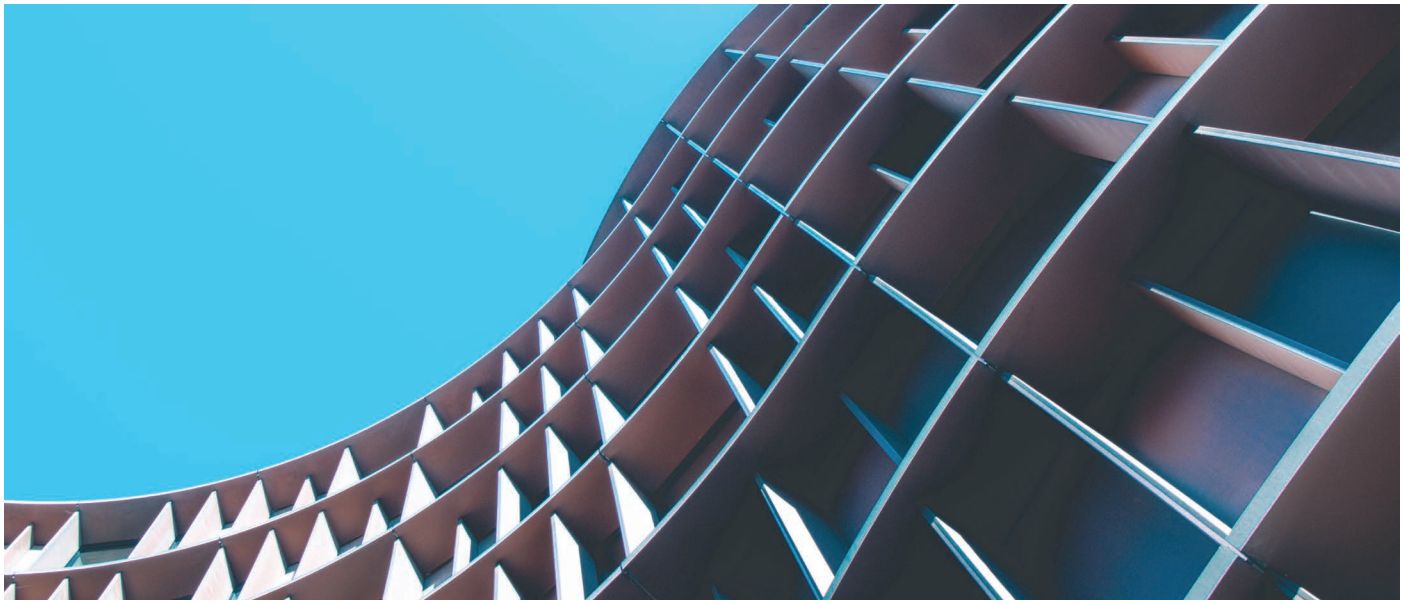
Architecture and Construction

Arvind Composites' FRP products present an appealing proposition for architecture, building and construction projects due to their numerous advantages. We also have the capability to produce them in various colours, shapes and surface finishes, catering to a diverse range of aesthetic and structural requirements. Our FRP products for construction applications have the following benefits:

- Ability to mold into complex shapes
- Lightweight yet strong and durable structures
- Wide selection of surface finishes and colors
- ow maintenance requirements, resistant to corrosion and pests
- Suitable for smart building structures due to their transparency to telecom signals

Composites offers a comprehensive range of elements that suit various architectural styles and structures:

- Straight-line essentials such as bridge decks, railings, gratings, wall panels, stairs, and steps
- Complex elements featuring curvature and intricate designs, including bespoke façades, pergolas, arches, decorative columns and beams, and wall claddings



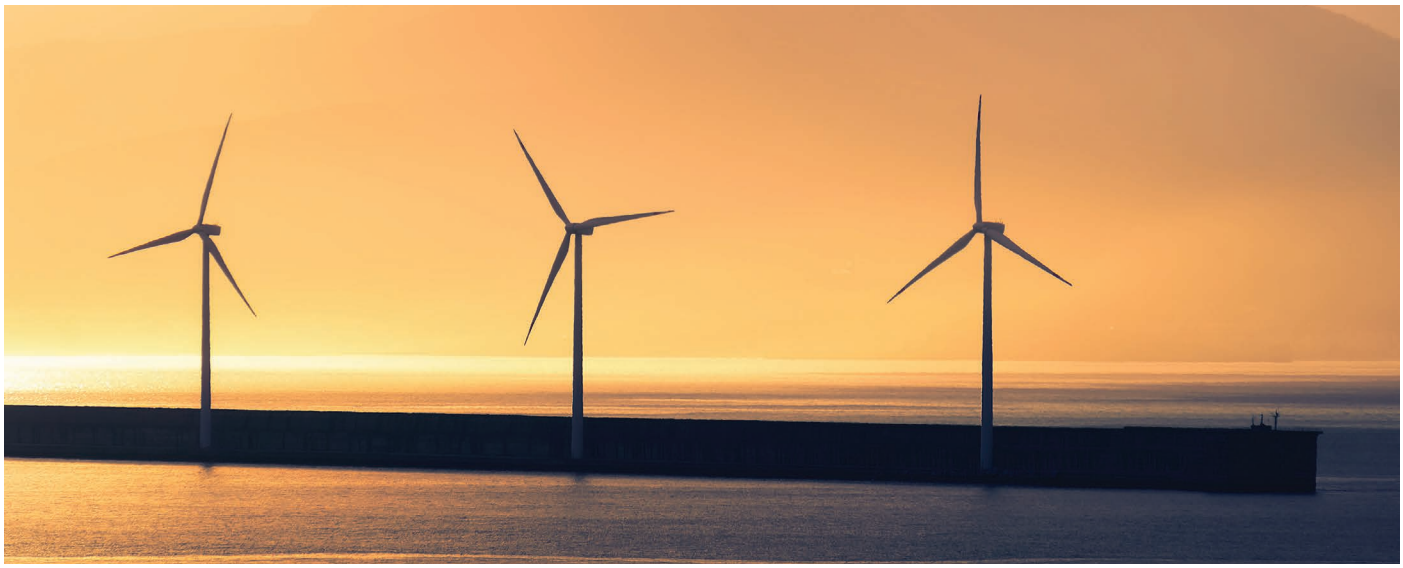
Renewable Energy

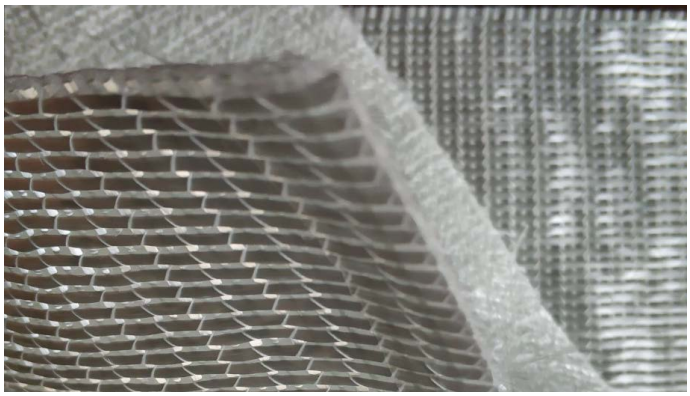
Arvind Composites' pultruded and hand-molded FRP (Fiber-Reinforced Polymer) products find widespread application as cross-arm bars, wedges, and reinforcements in wind turbines, as well as structures supporting solar panels. These products are favoured for their numerous advantages over traditional materials, including:

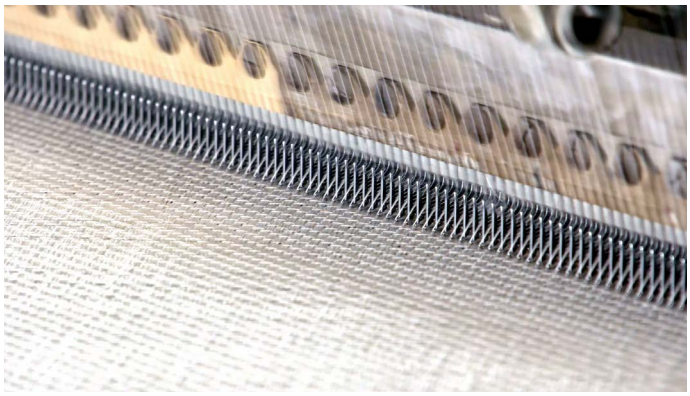
- Exceptional strength-to-weight ratio
- Low maintenance requirements
- Thermal and electrical insulation properties

Furthermore, the longevity of FRP contributes to a lower carbon footprint, making it an environmentally preferable option for sustainable projects.
Key products supplied by Arvind Composites include:

- Wedges
- Solar panel supporting structures
- Reinforcement fabrics
- X-arm bars
- Nacelle covers







Telecommunication

Arvind Composites stands as the premier supplier of Radomes for telecom base station antennas. Its lightweight nature, excellent dielectric properties, and low CME & CTE render it an ideal material for this application. The signal transparency offered by FRP makes it perfect for constructing smart buildings and cities reliant on wireless data transmission, a critical facilitator of electronic communication between devices and controllers. Arvind has also collaborated with global telecom giants in the development of Smart Poles, crucial components of the forthcoming 5G telecom network.

Products for the telecom industry include:

- Antenna Radome
- Terrestrial and rooftop towers
- Service Platforms
- Cage Ladders
- Smart poles

Hand Moulded Composite Solutions

Arvind Composites holds the distinction of being the largest supplier of cooling tower fan-stacks, mass-transport solutions, and other hand-molded products tailored for diverse applications. Hand molding entails the meticulous layering of reinforcement fabrics, mats, and rovings onto a mold, interspersed with resin formulations, typically applied through manual lay-up or spray methods. The wooden pattern serves as the basis for crafting the mold.

Despite being perceived as more labor-intensive than alternative manufacturing processes, hand molding remains widely utilized due to its ability to fashion intricate, irregular parts and accommodate prototype development (facilitating short runs at lower costs), thus presenting an appealing manufacturing option. This method is also employed in crafting hand-molded gratings, where molds are constructed from machine-cut steel of various grid sizes.

Arvind Composites boasts expertise in the production of FRP hand-molded products such as fan stacks for cooling towers, CP panels, gratings, and components like window frames and toilet cabinets for the railway industry. Depending on the required characteristics and volumes, we also deploy vacuum infusion and resin-transfer methods. Our highly skilled hand-molding team excels in tooling development, stringent testing and quality assurance procedures, as well as design and fabrication capabilities. We offer an extensive range of hand-molded products and solutions, including:

- Cooling tower fan- stacks and fan cylinders
- Moulded grating panels
- CP Panels
- Interior solutions including toilet units, panels and other components for rail/metro coaches
- Flat panels for variety of applications

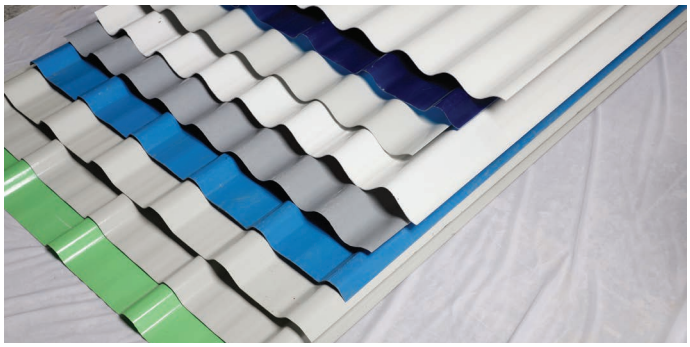
Continuous Lamination Composites

Arvind Composites manufactures an extensive array of FRP sheets utilizing the Continuous Lamination process. Our production lines are equipped to manufacture sheets with widths of up to 2.2 meters and thickness ranging from 0.6mm to 2.5mm. These sheets can exhibit translucent or opaque properties and are available in both flat and corrugated profiles.

For specialized applications, we offer sheets with Fire Retardant properties and those with a Gel-coat finish. Our FRP sheets are lightweight, UV-resistant, and provide insulation against heat. Additionally, they can be coated with anti-microbial chemicals for added protection.

Applications:

- Roofing sheets including translucent skylights
- Body panels for buses, recreational vehicles and other automobiles
- Cooling Towers casing panels
- Interior cladding for sterilized anti-microbial rooms
- Wall Partition Panels, Decorative Panels
- Green House Structures, Fencing



Mobility Composites

FRP (Fiber-Reinforced Polymer) has emerged as the preferred material for interiors in mass transportation equipment such as trains, metros, buses, and airplanes. Its ability to be moulded into virtually any shape, wide range of surface finishes and colors, ease of cleaning and maintenance, and lightweight yet durable nature make composites the go-to solution for mass transport structures and interiors. The flexibility in molding allows these panels to replace multiple parts, while their low fire, smoke, and toxicity indices make them a safer alternative compared to traditional materials like wood-based panels.

At Arvind Composites, we utilize various manufacturing methods such as RTM (Resin Transfer Molding), LRTM (Light Resin Transfer Molding), VARTM (Vacuum Assisted Resin Transfer Molding), Pre-preg Molding, painting, gluing, assembly, Vacuum Press Lamination, Bulk Molding, Pultrusion, and Compression Molding to produce a diverse range of components and solutions for the Mass Transportation industry. Our facilities include Clean Rooms for adhesive gluing in compliance with DIN 6701 standards, and our test labs are equipped with a wide range of equipment to conduct comprehensive testing not only on mechanical properties but also on smoke density, toxicity index, limiting oxygen, and moisture absorption.

We are an approved supplier to Bombardier Transportation and Indian Railways, and our facilities hold certifications including ISO 9001, ISO 14001, and IRIS (TS 22163).

The internal and exterior products we supply include:

- Interior / Exterior Parts of Rail & Metro Coaches
- Sandwich Panels (Honeycomb/Foam)
- Ceiling Panels
- Modular Toilets
- Front Mask / Nose Cone

Sports Equipment

Arvind Composites stands as a trailblazer in the domestic manufacturing of Carbon and Glass Fiber Reinforced Moulded Sports Goods, including badminton and tennis racquets, and hockey sticks in India. Our state-of-the-art facility leverages in-house prepreg technology to craft sports equipment that caters to professional players, amateurs, and beginners alike. Arvind-manufactured sports products are distributed in both local and global markets by renowned brands and consistently garner high praise and ratings from users and customers.

Equipped with cutting-edge technology and manufacturing processes, including robotic and CNC equipment, along with a meticulously designed input supply chain, our team of highly trained experts enables us to deliver world-class products that are competitively priced.

Arvind Sports has its own private label called "Exergy" which produces cutting edge products for Badminton, Tennis, Racket Sports and Field Hockey. This brand is sold across the world with multiple federations being regular users.

Sports Business Product Portfolio:

- **Badminton Racquets:**
  - Weight: 72 gms to 150 gms
  - String Tension: 24 lbs to 38 lbs
  - Balance: Head Heavy – Balanced – Tail Heavy
  - Flexibility: 8 (highly stiff) to 10 (highly flexible)
  - Carbon: 24T to 40T Graphite
- **Tennis Racquets**
  - Weight: 220 gms (light Racquets / entry level) to 370 gms (heavy Racquets / intermediate and pro level)
  - Power: Low – Medium – High
  - Balance: Head Heavy – Balanced – Tail Heavy
  - String Tension: 40 lbs to 65 lbs
  - Flexibility: 60 (highly flexible) to 73 (rigid)
  - Carbon: 24T to 40T Graphite
- **Pickleball Rackets**
  - Weight: 210 gms (light Racquets / entry level) to 230 gms (heavy Racquets / intermediate and pro level)
  - Power: Low – Medium – High
  - Balance: Head Heavy – Balanced – Tail Heavy
  - Materials: Glass, Carbon Fiber, PP and Aramid Honeycomb
- **Padel Rackets**
  - Weight: 325 gms to 370 gms
  - Materials: Glass, Carbon Fiber, PE-EVA-Ultrasoft core
  - Balance: Head Heavy and Even Balanced
- **Hockey Sticks**
  - Weight Range:
    Light: 500 – 530 gms
    Medium: 530 – 560 gms
    Heavy: 560 – 590 gms

- Bow:

  Standard Bow / Regular Bow / Classic Bow

  Control Bow / Mega Bow / Medium Bow

  Low Bow / Late Bow / Extreme Late Bow

- Stick Head Shapes:

  Midi Head: provides players with more control and manoeuvrability

  Maxi Head: provides more power, hitting consistency, makes trapping easier and gives better reverse side control

  Hook Head or J Hook: has large surface area for hitting

  Scoop Bend: concave bend in stick for better scooping

  Power Hook or Banana Toe: and provides amazing control

  Standard Bow / Regular Bow / Classic Bow

  Control Bow / Mega Bow / Medium Bow

  Low Bow / Late Bow / Extreme Late Bow

  Power: Low – Medium – High

- Composite:

  24T Carbon and High Strength E-Glass

Pressure Vessels and Tanks

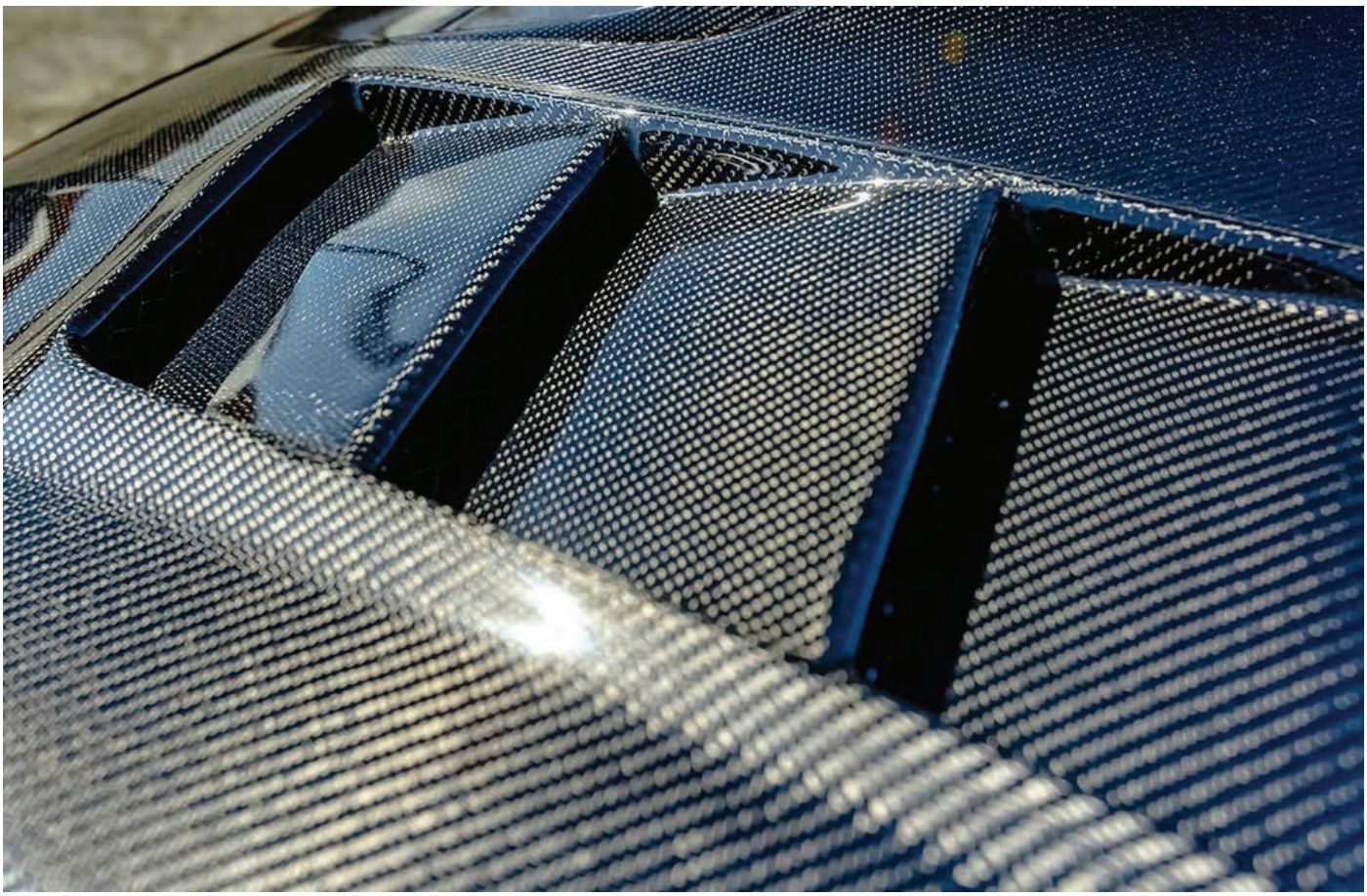
Arvind manufactures filament wound pipes and tanks, integral components used across various industrial sectors, particularly in process industries like chemicals, fertilizers, and petroleum. This process involves winding filaments under tension around a rotating mandrel. We utilize glass roving filaments, which are impregnated in a resin bath before being wound onto the mandrel. Upon curing of the resin, the mandrel is removed, leaving the final hollow product. Applications such as liquid or gas tanks, the mandrel remains a permanent part of the finished product, serving as a liner.

Currently, Arvind Composites produces the following products through filament winding:

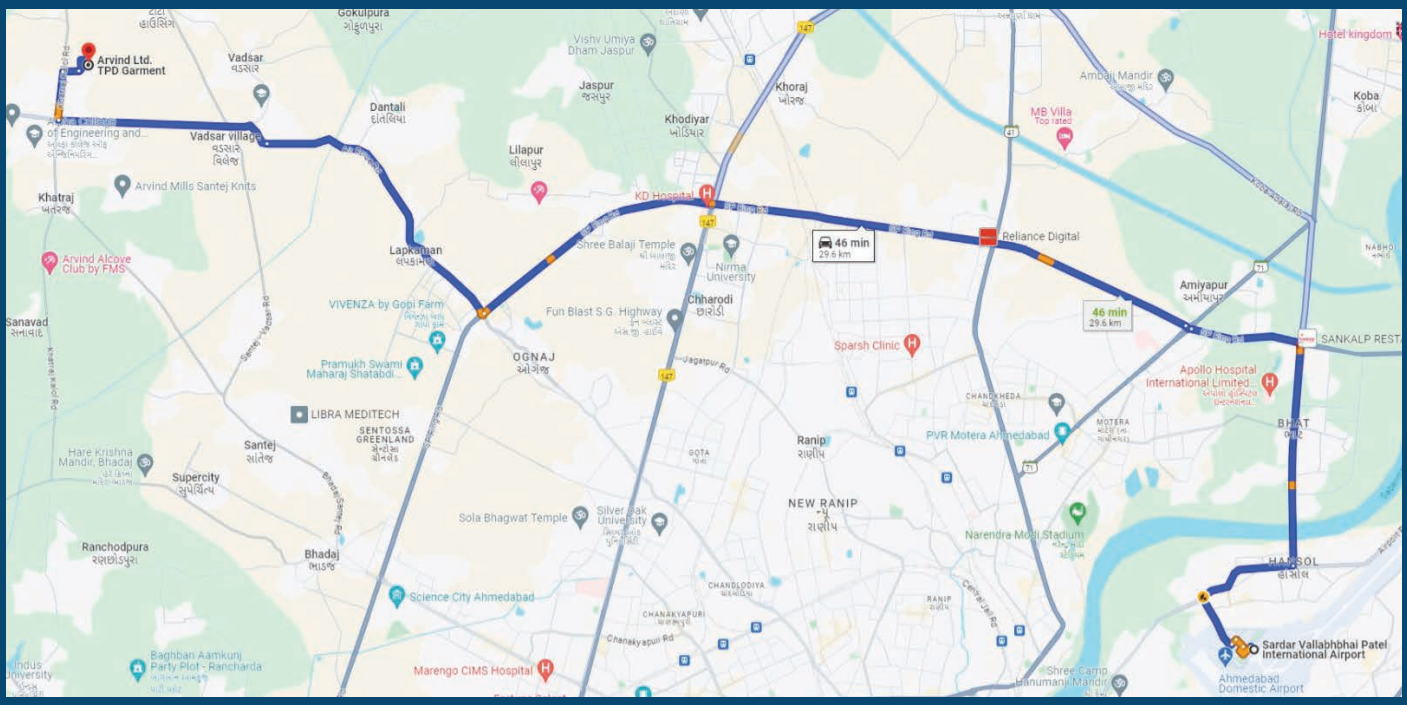
- Pipes suitable for various applications up to 8” diameter and 6 meters in length
- Fluid containers/tanks

Emerging Carbon Composite Solutions

Arvind Composites, through its partners is working on developing capability to create solutions to various applications through carbon composites. Arvind Composite is building full suite solutions, including design and development, processing and testing to enable a wide variety of solutions for industries like Drones, Aviation, and Defence etc.



Arvind Composites facilities are located in Ahmedabad, ~30 Kms away from Sardar Vallabhbhai Patel International Airport and ~25 Kms from Ahmedabad Railway Station. The facilities are well connected to national highways, easier to reach through road as well.



Arvind
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You can reach out to us at:
amd@arvind.in for any specific solutions