Arvind
COMPOSITES

Built to last: Arvind FRP Cable Trays

Arvind Composites Division

Founded in 1931, Arvind is one of India's largest integrated textile-to-retail conglomerates with successful forays in advanced materials, environmental solutions and real estate. A pioneer of denim in India, Arvind is a $1.5 bn company with an unmatched portfolio of owned, licensed brands and retail formats. Arvind is a supplier of fabrics to global brands such as Levi's, Gap, VF Corp, Tommy Hilfiger, Zara, H&M and others.

Known for its commitment to innovation and quality, Arvind manufactures high performance protective and industrial fabrics through its Advanced Materials Division, using world-class technology and research-led processes.

Arvind started its Composites Division in 2014 producing structural profiles and hand-laminated products. With a monthly production capacity exceeding 500 MT, Arvind has been able to serve global customers with high standards of quality and delivery. Arvind provides complete solutions for all structural needs, including gratings, poles and hand-laminated products. Arvind's FRP products are sold in more than 40 countries.

WHY FRP?

FRP (Fibre-reinforced plastics) is a composite material made from a polymer resin matrix reinforced by glass fibres and fabrics. Also known as GRP (Glass reinforced plastic) or fibreglass, it is a lightweight, strong and durable material, used as a superior alternative to steel, aluminum, wood or concrete.

- High strength and low weight
- Durable and maintenance-free
- Non-conductive
- Rapid installation
- Fire retardance
- Design Flexibility

Steel Rusts

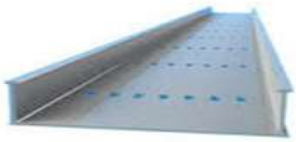
Wood Rots

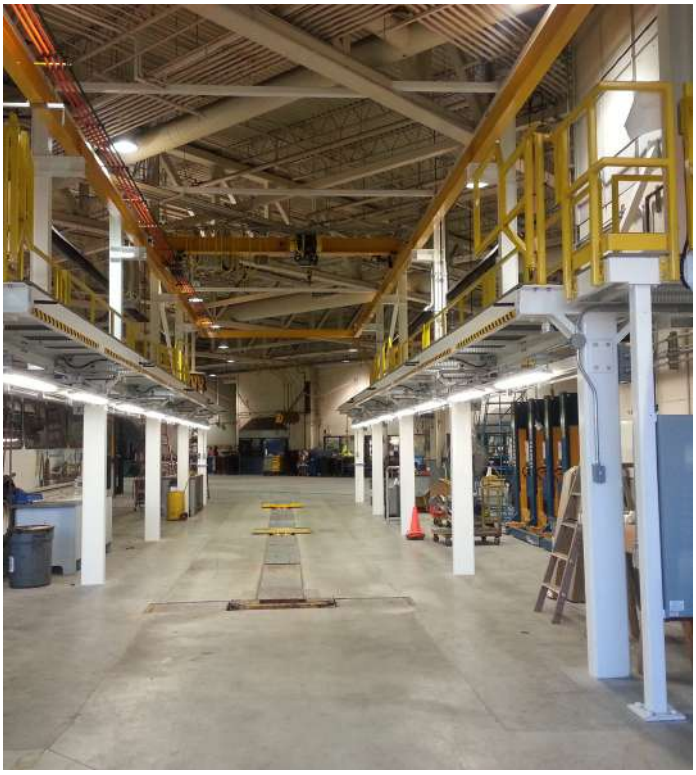
FRP Lasts

Cable Trays

Arvind's FRP cable trays are designed to be light-weight, robust and durable. Due to the lower weight, FRP cable trays allow a higher loading span thus reducing the overall support structure and the initial cost. Furthermore, our cable trays are virtually maintenance free and can survive for decades in presence of weathering and corrosive elements. Thus, they are both an economical and a long-term superior product compared to alternatives.
Arvind's cable trays are available with all accessories and are electrically insulated, UV protected and fire-retardant making them the material of choice for your cable management systems.

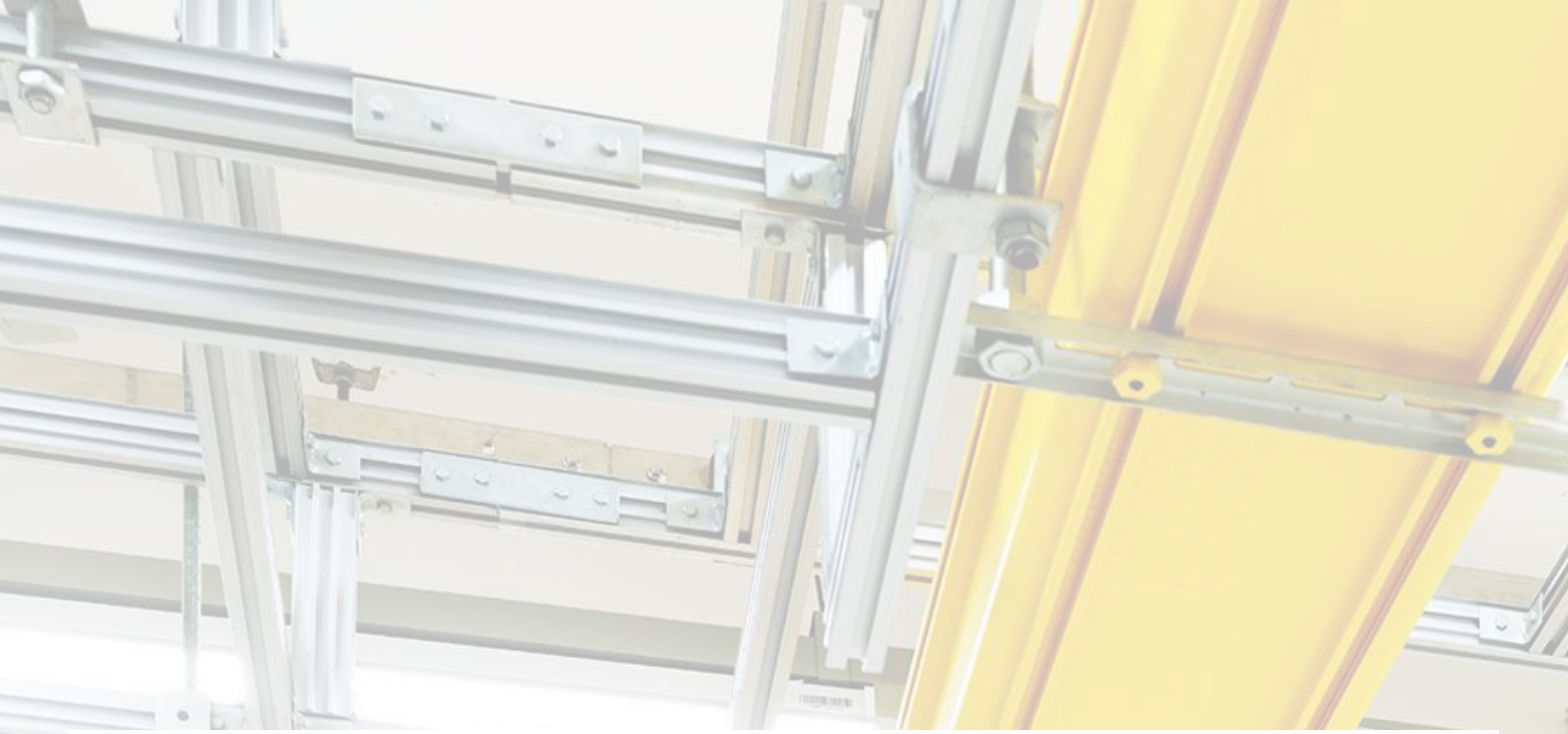
Arvind offers full range of Cable Trays

FRP Cable Support System			
Type	Ladder Type	Perforated Type	Solid Bottom/Trough Type
Features	Made by assembling C channel and rungs.	Made with channel C with pre drilled holes.	Same as Perforated type but has solid bottoms.
Pictorial Representation			
Applications	Suitable for power cables/large cables	Suitable for small loads,instrument or data cables.	Suitable for small loads,instrument or data cables.
Usage	Power Plants, chemical Plants, large scale industries, high rise and commercial complexes.	Telecommunication, for light cable loads, high rise commercial buildings	Telecommunication, for light cable loads, high rise commercial buildings



Advantages

- ✓ Corrosion resistant
- ✓ High strength-to-weight ratio
- ✓ High durability
- ✓ Lightweight
- ✓ Fire retardant
- ✓ Easy installation
- ✓ Non-magnetic



FRP cable trays offer a significant lifetime cost benefit compared to conventional alternatives

Parameters for cable tray size	Ladder type, MOC FRP, without covers, Siz: 300*100mm, Thickness: 4mm w.hardware/coupler plate	Ladder type, MOC GI, without covers, Siz: 600*75mm, Thickness: 2.5 mm w.hardware/ coupler plate
Cost per meter	495	400
Dflection at 180 kg	8.2 mm	
Deflection at 180 kg + centre load of 70 kg	10.3mm	Data Not Available
Total Cost for 100 Meter	49500	40,000
Zero Maintainance life (years)	15	5
Installation Cost	7000	7000
Support Cost	5000	8,375
Support installation	4000	6700
Total Cost	65,500	62,075
Recurring cycles(no.)	0	3
Colouring + Labour approx price(Rs.)	0	47,000
Total Recurring cost (Rs.)	0	94,000
Total Lifecycle Cost (Rs.)	81,500	2,25,153

Life cycle cost of GI cable tray is thrice the FRP cable tray.

Since FRP cable tray can be used with unsupported span of 2.5 meter as compared to 1.5 meter in GI, use of FRP cable tray can significantly reduce load on supporting structures

TEST STANDARD FOR PULTRUDED SECTION

Ladder Type Cable Trays

Sr No	Description	Parameters
1	Standard	As per NEMA FG-1
2	Material	Ultra Violet Resistant, Corrosion Resistant & FireRetardant
3	Manufacturing Process	Pultrusion
4	Std. Length of Cable Tray	3000mm
5	Width of Cable Ladder	150mm to 1000mm
6	Radius of Bends	300 mm,600 mm,900 mm
7	Rung spacing	300 mm
8	Rung shape	25 mm x 25 mm Square tube
9	Loading	As Per NEMA FG1
10	Deflection	Must not be more than Span/200
11	Support Span	Max. 2m

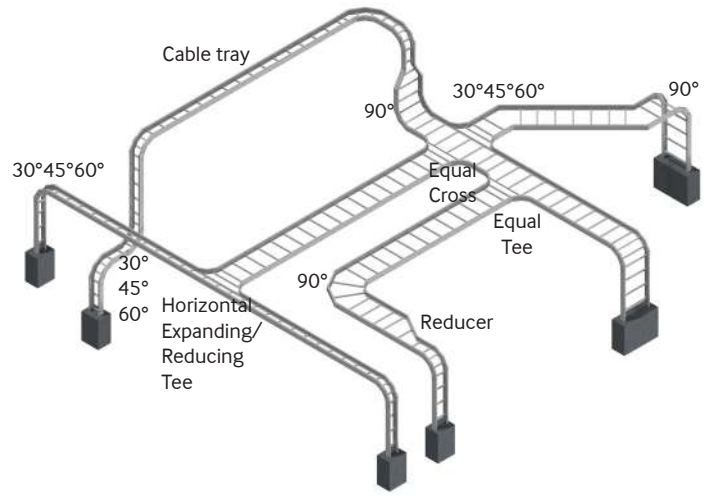
Perforated Cable Trays

Sr No	Description	Parameters
1	Standard	As per NEMA FG-1
2	Material	Ultra Violet Resistant, Corrosion Resistant & FireRetardant
3	Manufacturing Process	Pultrusion/Moulded
4	Std. Length of Cable Tray	3000mm
5	Width of Cable Ladder	50mm to 300mm
6	Radius of Bends	300 mm
7	Loading	As Per NEMA FG1
8	Deflection	Must not be more than Span/150
9	Support Span	Max. 1.5m

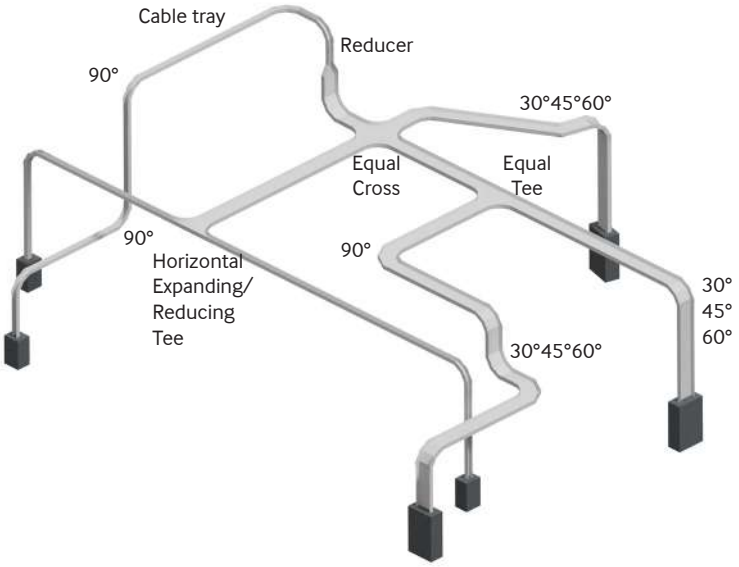
Solid Bottom/Trough Type

Sr. No.	Description	Parameters
1	Standard	As per NEMA FG-1
2	Material	Ultra Violet Resistant, Corrosion Resistant & FireRetardant
3	Manufacturing Process	Pultrusion
4	Std. Length of Cable Tray	3000mm
5	Width of Cable Ladder	150mm to 1000mm
6	Radius of Bends	300 mm,600 mm,900 mm
7	Rung spacing	300 mm
8	Bottom Sheet	3.175 mm, 6.35 mm
9	Rung shape	25 mm x 25 mm Square tube
10	Loading	As Per NEMA FG1
11	Deflection	Must not be more than Span/200
12	Support Span	Max. 2m

Ladder Type Tray



Perforated Type Tray



As per EIL specifications requirements.
(Engineers India Ltd.)EIL - OED - S - 422 Rev-4

Width of cable Tray	Load Kg./Mtr. for Support span 2.5Mtr.
150 mm	30
300 mm	60
450 mm	75
600 mm	90
750 mm	120
900 mm	120

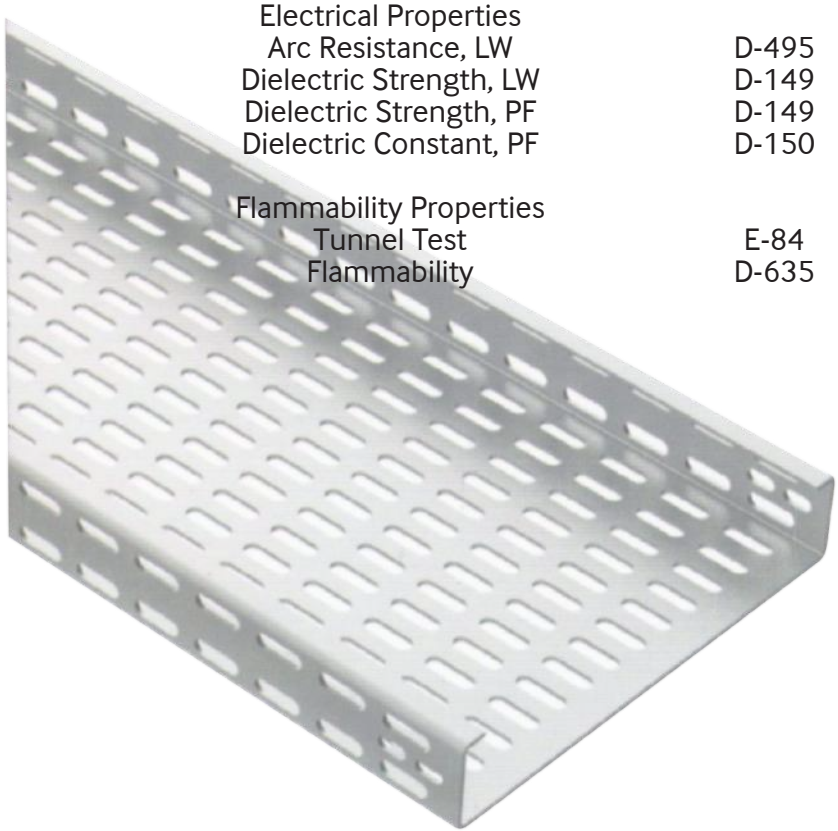
Concentrated Static load is 70 Kg. at the centre of the span.

Accessories of Cable Tray

Accessories
30° HORIZONTAL BEND
45° HORIZONTAL BEND
60° HORIZONTAL BEND
90° HORIZONTAL BEND
30° VERTICAL IN SIDE BEND
45° VERTICAL IN SIDE BEND
60° VERTICAL IN SIDE BEND
90° VERTICAL IN SIDE BEND
30° VERTICAL OUT SIDE BEND
45° VERTICAL OUT SIDE BEND
60° VERTICAL OUT SIDE BEND
90° VERTICAL OUT SIDE BEND
EQUAL TEE
HORIZONTAL EXPENDING TEE
HORIZONTAL REDUCING TEE
EQUAL CROSS
REDUCER STRAIGHT
REDUCER RIGHT HAND
REDUCER LEFT HAND

Properties of FRP

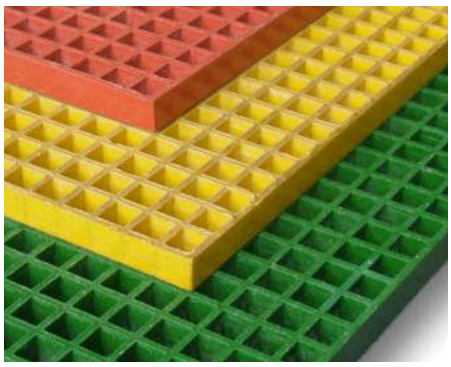
Mechanical Properties	ASTM	UNITS	VALUE
Tensile Strength, LW	D-638	psi	30,000
Tensile Strength, CW	D-638	psi	7,000
Tensile Modulus, LW	D-638	10^6 psi	2.5
Tensile Modulus, CW	D-638	10^6 psi	0.8
Compressive Strength, LW	D-695	psi	30,000
Compressive Strength, CW	D-695	psi	15,000
Compressive Modulus, LW	D-695	10^6 psi	2.5
Compressive Modulus, CW	D-695	10^6 psi	1
Flexural Strength, LW	D-790	psi	30,000
Flexural Strength, CW	D-790	psi	10,000
Flexural Modulus, LW	D-790	10^6 psi	1.8
Flexural Modulus, CW	D-790	10^6 psi	0.8
Modulus of Elasticity, E	Full Section	10^6 psi	2.8
Shear Modulus	--------	10^6 psi	0.45
Short Beam Shear	D-2344	psi	4,500
Punch Shear	D-732	psi	10,000
Bearing Strength, LW	D-953	psi	30,000
Notched Izod Impact, LW	D-256	ft-lbs/in	25
Notched Izod Impact, CW	D-256	ft-lbs/in	4
Physical Properties			
Barcol Hardness	D-2583	--------	45
24 Hour Water Absorption	D-570	% max	0.45
Density	D-792	lbs/in 3	.062-0.70
Coefficient of Thermal Expansion, LW	D-696	10^{-6} in/in/°C	8
UV	G53		
Electrical Properties			
Arc Resistance, LW	D-495	seconds	120
Dielectric Strength, LW	D-149	kv/in	35
Dielectric Strength, PF	D-149	volts/mil	200
Dielectric Constant, PF	D-150	@60hz	5
Flammability Properties			
Tunnel Test	E-84	Flame Spread	25 max
Flammability	D-635	--------	Nonburning



ARVIND COMPOSITES

Product Offering

Cable trays

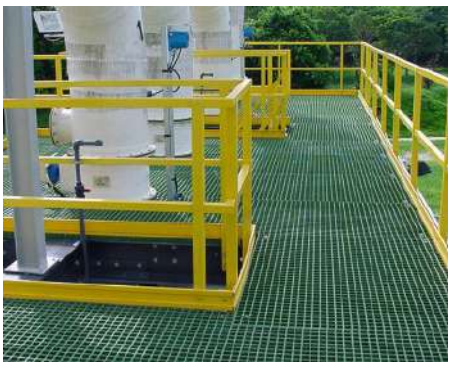


Gratings

Poles

Ladder

Platforms



Handrails / Walkways

Staircases

Monkey ladders

Toilets

Why Arvind?

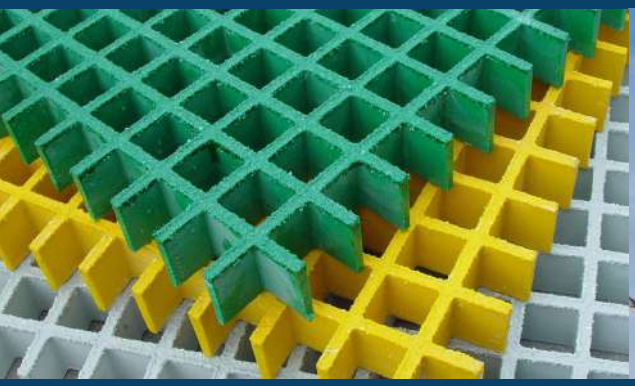
Arvind lineage: 100+ year-old financially strong publicly listed corporate with experience of delivering high quality products to global customers

Scale: 500T+ pultrusion production capacity per month with sufficient resources to expand, working across a range of products and solutions

Systems and processes: Strong in-house processes for production planning, export logistics support and quality control to ensure total customer satisfaction

Best cost structure: Backward integration of glass fabrics, scale for glass and resin purchase, export logistics advantage

Team capabilities: All round-capabilities across team supported by expertise across various areas by broader Arvind team



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