

## FIBERGLASS CABLE TRAY SYSTEM

CABLE TRAY SYSTEM | LADDERS | STAIRCASE | MONKEY LADDER | HAND RAIL  
WALKWAYS | SCRUBBER STRUCTURES | CUSTOM STRUCTURES

# Dudhani Poly - Extrusion Pvt Ltd

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# Dudhani

## Dudhani FRP Cable Tray System

### Company Profile :

**Dudhani** is known for the quality performance of its fiberglass products be it Cable Trays, Ladders, Staircase, Cable Cleats, Moulded Gratings, Custom Structure & Handrails. It is a company promoted by a group manufacturing non-corrosive products for last 3 decades specially designed for the use in critical environment.

Dudhani **Ladder & Perforated** type Cable Tray provides reliable cable support in corrosive application. Both polyester and vinyl ester resin systems are available & all components incorporating U. V. stabiliser and a surfacing veil to resist corrosive atmosphere. The cable trays manufactured by us are from pultruded sections / profiles of fiberglass, this pultruded sections help in reducing cost, achieving quality, perfection for optimum performance of the tray.

At Dudhani we have in house facility of producing pultruded sections as well as other accessories with multiple production lines. We at Dudhani produce Cable Trays, as well as molded gratings & fittings as well as other accessories like coupler plates, struts, and many more. From power plants to fertiliser industries, paper mills to refineries to laboratories, sound electrical design requires an adaptable cable support system that is reliable. Above all durability and resistance to corrosion lead to lower costs during the life of installation.

### Featuring

Corrosion resistance  
Strength & durability  
Fire retardant  
Light Weight  
U.V. Stabilities  
Long Life

### Applications

Chemical Plants  
Power Plants  
Effluent Treatment Plants  
Offshore / Onshore Platforms  
Paper Plants  
Refineries and many more.

**Design Specification :** Our Cable Tray System meets the requirement of **NEMA** (National Electric Manufacturers Association) **FG I – 1993** ( Current Issue) for **FIBERGLASS CABLE TRAY SYSTEM.**

**Specifications of Engineers India Ltd.**

**UL ( Underwriters Laboratories, Inc) Standards for NON- Metallic Cable Tray. NEMA VE 2-2001 Cable Tray Installation Guideline.**

as well as clients specification / requirements.

**We can supply Zero Halogen, Halogen Free, Antistatic and Static Dissipative Products on request.**

### Working load Capacity

The working load capacity represents the ability of a fiberglass cable tray to support the static weight of cables. It is equivalent to destructive load capacity, with minimum safety factor of 1.5

#### As per NEMA Loading standards : -

Load	Lb/ft.	Kgs/Mtr.
A	50	74
B	75	111
C	100	148

#### Support span : 8,10,12 are in Feet

Tray type	Load Class
SLC 3	8A
SLC 4	8C, 10B
SLC 5	10C, 8C
SLC 6	10C, 12C, 20C

#### As per general specifications : -

Widht of Cable Tray	Type of Tray	Load Kg / Mtr. For Support span 2.0 Mtr.
150 mm	SLC 3	30
300 mm	SLC 3	60
450 mm	SLC 3	75
600 mm	SLC 4	90
750 mm	SLC 4	120
900 mm	SLC 5	150

**Concentrated Static Load is 70 Kg. at the centre of the span.**

# Dudhani Fiberglass Cable Tray Specification

## Standards Applicable

1. IS 6746 - 1994 Specs for Unsaturated Polyester Resin systems for Low Pressure Fibre Reinforced Plastics.
2. NEMA FG 1 1984- 1993 (current issue) Specifications for fiberglass Tray System -Loading Characteristics.
3. IS 6746-Appendix-K/UL 94 Flame Retardant (low flammability/V0).

## Technical Details

1. Side Member FRP Pultruded 'C' Section.
2. Rung Sq. Hollow tube 25mm X 25mm.
3. Construction/assembly of tray. The rungs to side member are connected, will have both mechanical & adhesive lock. The tray shall be assembled by use of a locking pin made of fiberglass reinforced thermoplastic. The locking pin is inserted under pressure by machine with a high strength adhesive. All the bonded parts are surface prepared for maximum adhesion. All straight sections are pre drilled for Coupler plates. All cut ends shall be resin coated.
4. Length of Cable Tray 3000mm .
5. Width of cable Tray 100mm to 1000mm.
6. Rung Spacing 150mm / 300mm.
7. Ultra Violet Radiation protection : All the composite materials shall have UV Light inhabiting chemical additives to resist degradation from UV.
8. Flame Retardancy All the composite material shall be fire retardants & will have flame spread of 25 or less (Class 1 Rating) when tested in accordance with ASTM D 635. Pultruded parts are provided with surface veil to achieve maximum chemical resistance.

## Accessories/Fittings.

All fittings are pre fabricated & will be same specification as of straight trays.

## Connection / Coupler plate & Splice plates

FRP Splice plates of various types i.e. straight as well as adjustable for angles. These plates should be installed between 0.2 & 0.3 of the length of span of the support. Fastener of SS304 / SS316 shall be provided of 6mm/8mm diameter. (as per requirement)

## Typical Properties of pultruded sections

1. ASTM-D-2863 - Oxygen Index - 30%.
2. ASTM-D-635 - Flame Spread (Extent of burning) - 25 mm.
3. ASTM-D-638 - Tensile Strength at break - 30,000 PSI.
4. ASTM-D-790 - Flexural Strength at break - 30,000 PSI.

## Corrosion resistance of resin system

Two standard composite resin systems are available. For most of the application polyester fire retardant (FR-P) is widely used. A vinyl ester composite fire retardant resin system (FR-VE) is used where strong acids (like hydrochloric acid), strong alkalis (like Caustic Soda), organic solvents and halogenated organic conditions exist. Dudhani fiberglass cable tray incorporates a synthetic veil on the surface of all structural shapes which causes a resin rich layer which enhances corrosion protection.

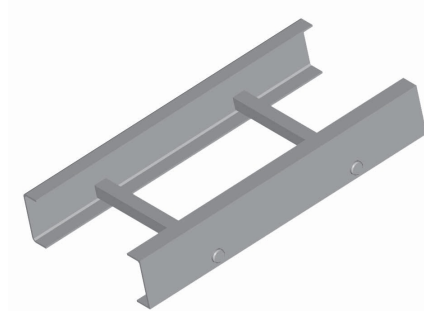
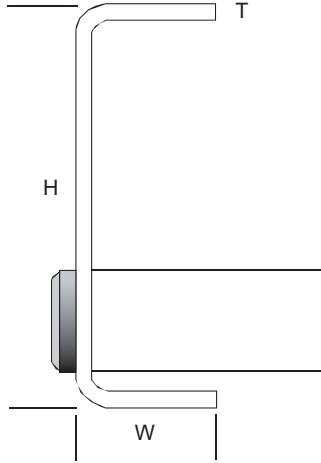
An abbreviated guide can be provided on request to assist in the selection of the proper resin system for individual application.

# STRAIGHT SECTION

Dudhani cable tray is available in polyester as well as vinyl ester resin system.

Our cable tray has a 'C' section as side rail.

Our cable tray has a square type rung & rung connection is made with mechanical & adhesive lock.



## Types available for cable tray system

### Size of side rails Width x Height

- 100x30x5 mm
- 100x30x3 mm
- 150x55x5 mm

# Catalog Numbering System

Combine all following four specification number to create catalogue number

Tray Type		Width of Tray	Rung Spacing	Length of Tray
Polyester	ISO	Width Inside Dimension	Spacing Center to Center	Available Length
SLC 3P	SLC 3V	150	150	FT/Mtr. 10/3
SLC 4P	SLC 4V	300	300	
SLC 5P	SLC 5V	450		
SLC 6P	SLC 6V	600		
		750		
		900		

Example to create a catalog. SLC4P-12-12-10=Polyester cable tray with 300mm width & 300mm rung spacing in the length of 10 Ft.

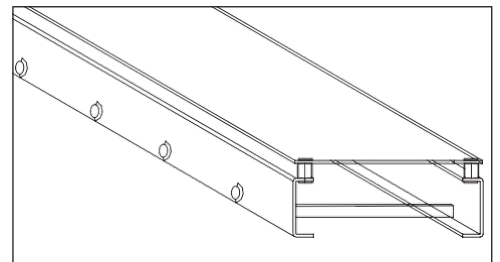
## COVER FOR LADDER TYPE CABLE TRAY

Cable trays covers are required only for those area where the cable needs to be protected from falling objects. The covers are available in Polyester as well as vinyl Ester resin system. The covers will be 3Mtr / 10ft. and the thickness of the covers are normally 3mm if not specified.

### FLAT COVER

Covers can be fitted with the help of thermoplastic stand off. It is recommended to use this studs at 600mm center along both side rails. This stand off is a separate item & can be supplied with the SS 304 hardware. Flat covers are available for straight trays as well as for accessories.

Tray width in mm 'C' side rails  
100 to 1000mm



# PRE - ASSEMBLED FITTINGS For ladder type cable trays

The pre assembled fittings are available in all the types of tray. The fittings are assembled with the help of FRP & SS304 fasteners unless & otherwise specified. Rungs are connected with a mechanical and adhesive lock.

## Catalog Numbering System

When Ordering fittings match the straight section tray purchased along with the appropriate width & radius.	Fitting type	Tray type	Degree of bend	Width	Radius
Example to create a catalog	FBMR	SLC4	90	12	12

If you wish to order covers for fitting add the letter 'C' after the catalog Numbers

### 30/45° DIRECT INSIDE BEND

FBIVD

Dim.in mm	30 Degree Angle	45 Degree Angle
A	260	315
L	700	650

### 30/45° DIRECT OUTSIDE BEND

FBOVD

Dim.in mm	30 Degree Angle	45 Degree Angle
A	260	315
L	700	650

### 45° INSIDE VERTICAL RADIUS BEND

FBIVR

Dim in MM	300 Radius	450 Radius	600 Radius	900 Radius
A	280	325	370	460
L	500	600	720	935

### 45° OUTSIDE VERTICAL RADIUR BEND

FBOVR

Dim in MM	300 Radius	450 Radius	600 Radius	900 Radius
A	280	325	370	460
L	500	600	720	935

### 90° INSIDE VERTICAL RADIUS BEND

FBIVR

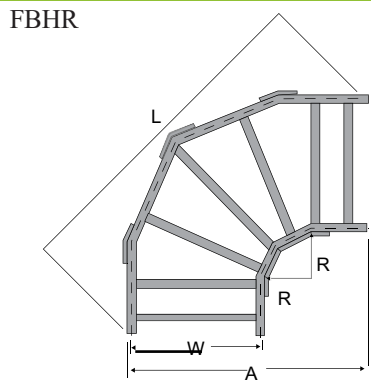
Dim in MM	300 Radius	450 Radius	600 Radius	900 Radius
A	550	700	850	1150
L	705	930	1140	1560

### 90° OUTSIDE VERTICAL RADIUS BEND

FBOVR

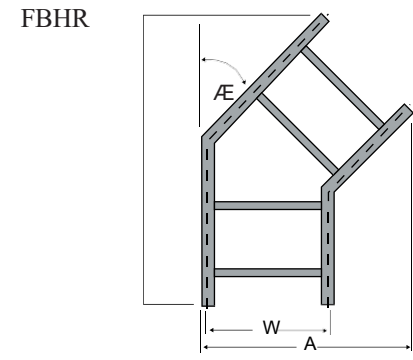
Dim in MM	300 Radius	450 Radius	600 Radius	900 Radius
A	550	700	850	1150
L	705	930	1140	1560

### 90° HORIZONTAL RADIUS BEND



Width	300 Radius	600 Radius	900 Radius
	A	A	A
150	600	900	1200
300	750	1050	1350
450	900	1200	1500
600	1050	1350	1650
750	1200	1500	1800
900	1350	1650	1950

### 30°,45° HORIZONTAL DIRECT BEND



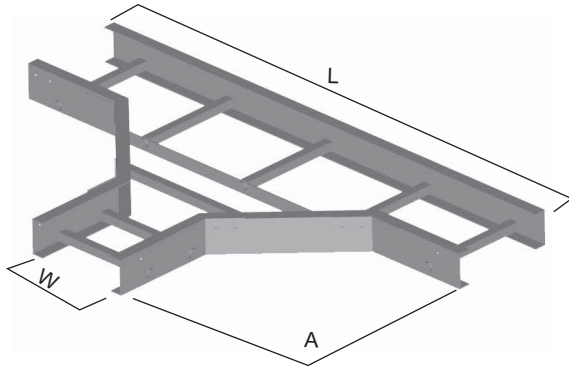
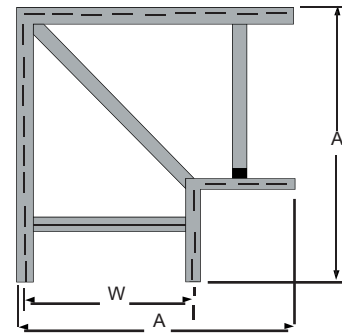
Width	30° Angle	45° Angle	60° Angle
	A	A	A
150	357	432	487
300	510	584	640
450	675	756	813
600	827	933	965
750	979	1060	1118
900	1130	1213	1270

# PRE - ASSEMBLED FITTINGS For ladder type cable trays

## 90° HORIZONTAL DIRECT BEND FBHD

Dimensions In.

(mm)	Width	A
	150	330
	250	406
	300	483
	450	635
	600	787
	750	940
	900	1092

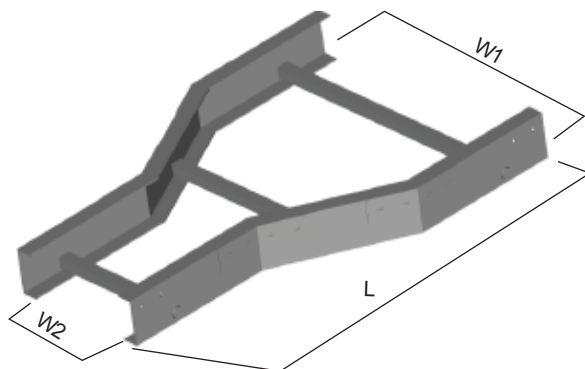
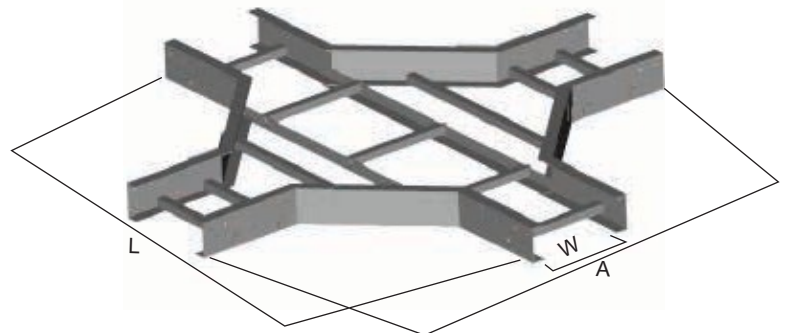


## HORIZONTAL RADIUS TEE FTHR

Width of CT	300 Radius		450 Radius		600 Radius		900 Radius	
	A	L	A	L	A	L	A	L
300	450	1500	600	1800	750	2100	1050	2700
450	450	1800	600	2100	750	2400	1050	3000
600	450	2100	600	2400	750	2700	1050	3300
750	450	2400	600	2700	750	3000	1050	3600
900	450	2700	600	3000	750	3300	1050	3900

## HORIZONTAL RADIUS CROSS FCHR

Width of CT	300 Radius		450 Radius		600 Radius		900 Radius	
	A	L	A	L	A	L	A	L
300	1200	1200	1500	1500	1800	1800	2400	2400
450	1350	1350	1650	1650	1950	1950	2550	2550
600	1500	1500	1800	1800	2100	2100	2700	2700
750	1650	1650	1950	1950	2250	2250	2850	2850
900	1800	1800	2100	2100	2400	2400	3000	3000

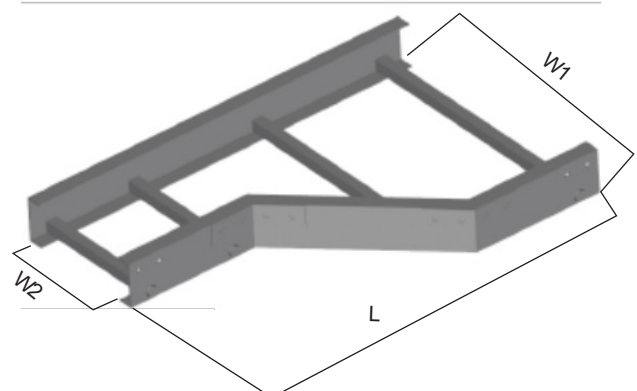


## STRAIGHT REDUCER FRS

Width	W2	W1	Length				
			900	750	600	450	300
300			1025	950	900	670	X
450			950	900	670	X	
600			900	670	X		
750			670	X			

## LEFT OR RIGHT REDUCER FRL (LEFT) FRR (RIGHT)

Width	W2	W1	Length				
			900	750	600	450	300
300			1025	950	900	670	X
450			950	900	670	X	
600			900	670	X		
750			670	X			



# SPlice PLATE FOR LADDER TYPE CABLE TRAY

Dudhani offers fiberglass as well as stainless steel connector plates designed to connect between straight sections & fittings.

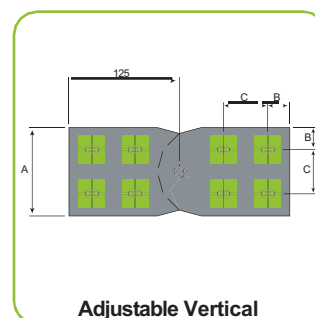
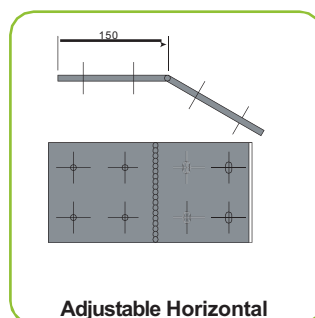
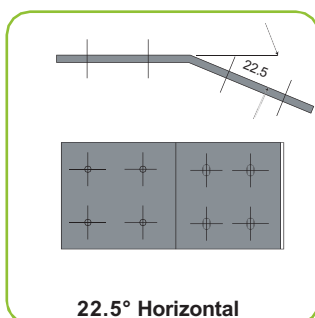
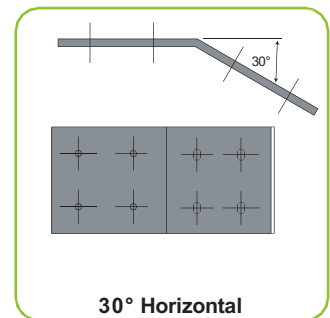
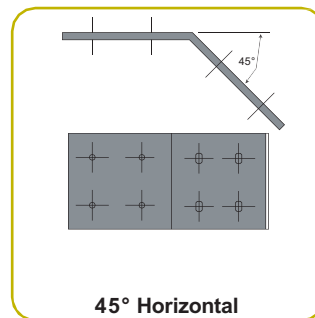
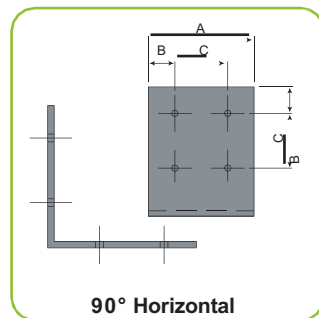
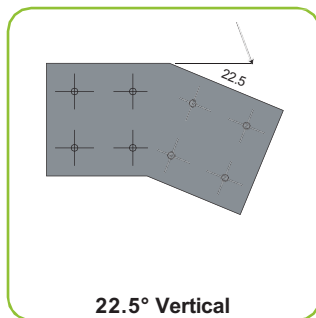
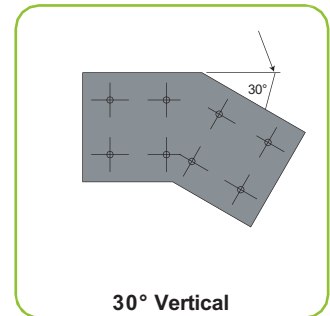
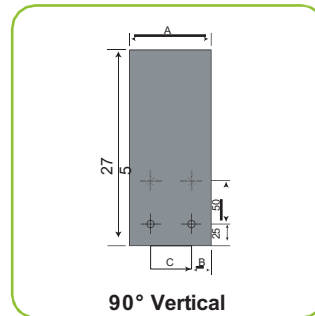
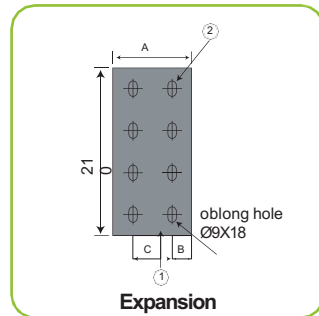
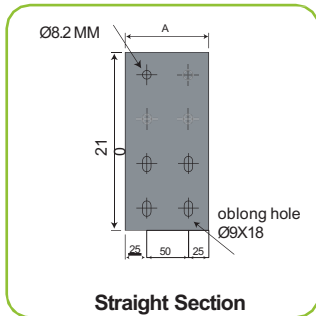
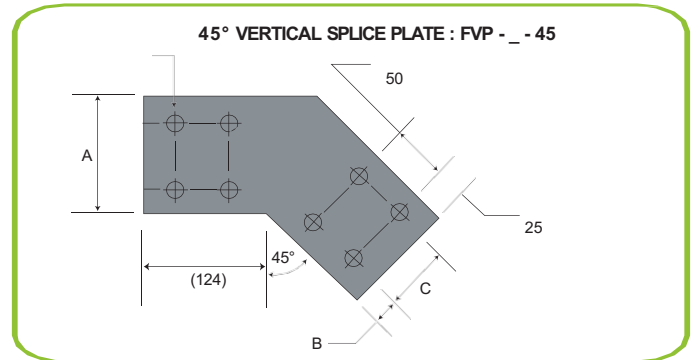
Sizes of bolts used for connectors plates are 8mm X25mm, hex bolt with nut, 2 plain washer & 1 spring washer. This bolts are available in SS304 & SS316.

## Catalog Numbering System

Tray type	Bolt set per Plate	Straight	Expansion	90° Vertical	45° Vertical	30° Vertical	22.5° Vertical	90° Horizontal	45° Horizontal	30° Horizontal	22.5° Horizontal
SPC 20	4	FSP-2-180	FEP-2-180	FVP-2-90	FVP-2-45	FVP-2-30	FVP-2-22.5	FHP-2-90	FHP-2-45	FHP-2-30	FHP-2-22.5
SPC 30	4	FSP-3-180	FEP-3-180	FVP-3-90	FVP-3-45	FVP-3-30	FVP-3-22.5	FHP-3-90	FHP-3-45	FHP-3-30	FHP-3-22.5
SPC 40	4	FSP-4-180	FEP-4-180	FVP-4-90	FVP-4-45	FVP-4-30	FVP-4-22.5	FHP-4-90	FHP-4-45	FHP-4-30	FHP-4-22.5
SPC 60	4	FSP-5-180	FEP-5-180	FVP-5-90	FVP-5-45	FVP-5-30	FVP-5-22.5	FHP-5-90	FHP-5-45	FHP-5-30	FHP-5-22.5
SPC 120	4	FSP-6-180	FEP-6-180	FVP-6-90	FVP-6-45	FVP-6-30	FVP-6-22.5	FHP-6-90	FHP-6-45	FHP-6-30	FHP-6-22.5

## Dimension of Splice Plates In mm.

Tray type	A	B	C
SLC 3	50	25	-
SLC 4	50	25	-
SLC 5	100	25	50
SLC 6	100	25	50
SLC 8	100	25	50

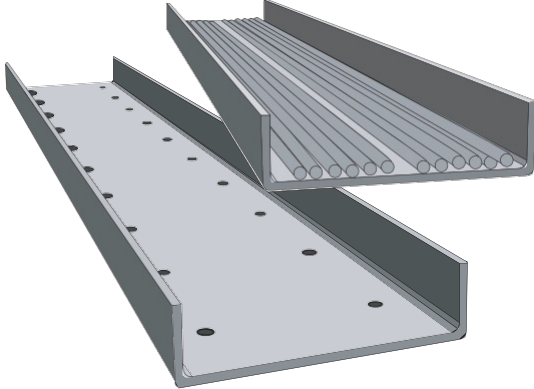


# CABLE TRAY SYSTEM FOR INSTRUMENTATION / LIGHT LOAD CABLES

Dudhani instrumentation tray is channel type & design for light loads.

They are available in solid as well as ventilated construction.

Dudhani cable tray is available in polyester as well as vinyl ester resin system.



## Type available for cable tray system

Code	Size of channel Width X Height	Code	Size of channel Width X Height
SPC 20	50x40 mm	SPC 61	150x50 mm
SPC 21	50x30 mm	SPC 62	150x30 mm
SPC 22	50x50 mm	SPC 63	150x35 mm
SPC 30	75x25 mm	SPC 64	150x100 mm
SPC 31	75x50 mm	SPC 80	200x40 mm
SPC 40	100x35 mm	SPC 81	200x50 mm
SPC 41	100x50 mm	SPC 82	200x100 mm
SPC 42	100x20 mm	SPC 121	300x50 mm
SPC 43	100x25 mm	SPC 122	300x60 mm
SPC 44	100x100 mm	SPC 123	300x75 mm
SPC 50	125x30 mm	SPC 124	300x100 mm
SPC 60	150x40 mm	SPC 240	600x80 mm

All sections and pre fabricated fittings are pre drilled to fix coupler plates.

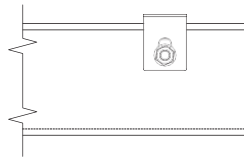
All fasteners and coupler plates are separate order items.

## Cover for Instrumentation trays

Part No  
SPC (Channel Width) C

eg : SPC20C

Includes FRP angel Clip & SS Hardware



## Pre Assembled Fittings for Instrumentation Cable Trays

The pre assembled fittings are available in all the type of tray. The fittings are assembled with the help of Stainless steel SS304 fasteners unless & otherwise specified.

Radius	Cat.	'A'
	No.	In mm
300	SPC-IVR-12	510
450	SPC-IVR-18	660
600	SPC-IVR-24	810

90° Inside Vertical Bend

Radius	Cat.	'A'
s	No.	In mm
300	SPC-OVR-12	510
450	SPC-OVR-18	660
600	SPC-OVR-24	810

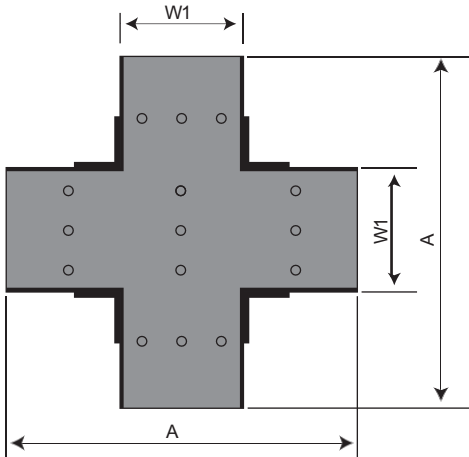
90° Outside Vertical Bend

Radius	Cat.	'A'
	No.	In mm
300	SPC-HB-12	510
450	SPC-HB-18	660
600	SPC-HB-24	810

90° Horizontal Bend

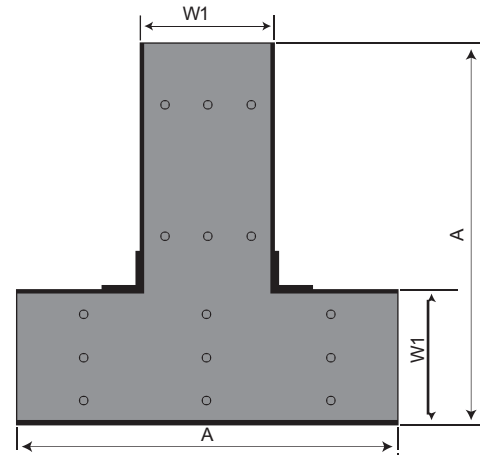


## Horizontal Cross



Catalog	W1	A
SPC20-CHD	50	400
SPC30-CHD	75	450
SPC40-CHD	100	500
SPC60-CHD	150	550
SPC80-CHD	200	550
SPC120-CHD	300	650

## Horizontal TEE



Catalog	W1	A
SPC20-THD	50	450
SPC30-THD	75	450
SPC40-THD	100	450
SPC60-THD	150	450
SPC80-THD	200	450
SPC120-THD	300	450

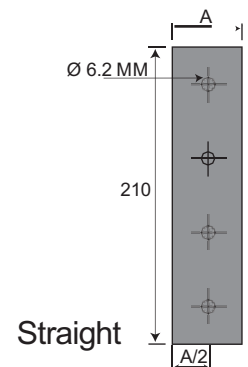
## SPLICE PLATES FOR INSTRUMENTATION CABLE TRAYS

Dudhani offers fiberglass as well as stainless steel connector plates designed to connect between straight sections & fittings.

Sizes of bolts used for connectors plates are 6mm X 25mm, hex bolt with nut, 2 plain washer & 1 spring washer. This bolts are available in SS304 & SS316.

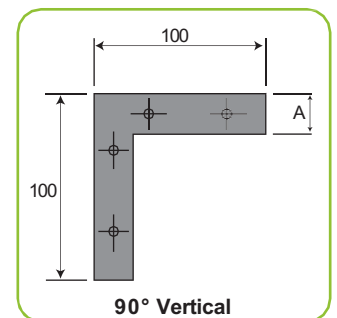
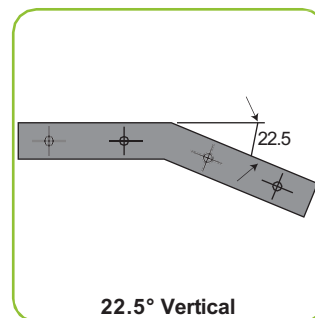
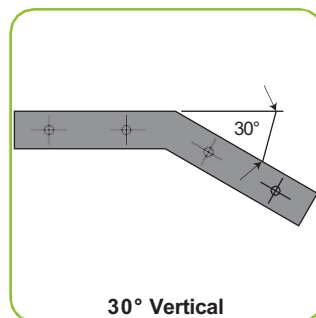
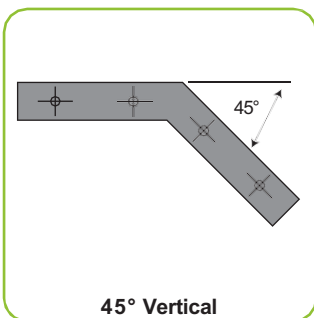
### Dimension of Splice Plates in mm.

Tray type	A
SPC 20	25
SPC 30	25
SPC 40	25
SPC 60	25
SPC 120	50



## Catalog Numbering System

Tray type	Bolt set per Plate	Straight	Expansion	90° Vertical	45° Vertical	30° Vertical	22.5° Vertical	90° Horizontal	45° Horizontal	30° Horizontal	22.5° Horizontal
SPC 20	4	FSP-2-180	FEP-2-180	FVP-2-90	FVP-2-45	FVP-2-30	FVP-2-22.5	FHP-2-90	FHP-2-45	FHP-2-30	FHP-2-22.5
SPC 30	4	FSP-3-180	FEP-3-180	FVP-3-90	FVP-3-45	FVP-3-30	FVP-3-22.5	FHP-3-90	FHP-3-45	FHP-3-30	FHP-3-22.5
SPC 40	4	FSP-4-180	FEP-4-180	FVP-4-90	FVP-4-45	FVP-4-30	FVP-4-22.5	FHP-4-90	FHP-4-45	FHP-4-30	FHP-4-22.5
SPC 60	4	FSP-5-180	FEP-5-180	FVP-5-90	FVP-5-45	FVP-5-30	FVP-5-22.5	FHP-5-90	FHP-5-45	FHP-5-30	FHP-5-22.5
SPC 120	4	FSP-6-180	FEP-6-180	FVP-6-90	FVP-6-45	FVP-6-30	FVP-6-22.5	FHP-6-90	FHP-6-45	FHP-6-30	FHP-6-22.5



# Advantages of FRP

Dudhani FRP cable tray management system has been designed to work in most extreme environments. Products are designed and manufactured to the highest quality standards while at the same time offering exceptional values to our customers. FRP products have many advantages, some of which are shown below.



## CORROSION RESISTANCE

Resistant to a range of chemicals including salt water.



## STRONG

Pultruded profiles have high loading capacity.



## LOW MAINTENANCE

Resists corrosion, which eliminates the need for continual maintenance and cleaning. Provides a cost effective long term solution.



## CONDUCTIVITY

Low thermal and electrical conductivity properties and high dielectric strength. Options for increased electrical conductivity are also available.



## WEATHER RESISTANT

FRP is highly resistant to cold temperatures and performs exceptionally well in even the harshest climates.



## LIGHT WEIGHT

High strength to weight ratio compared to traditional metallic support systems.



## EMI AND RFI TRANSPARENCY

Non-conductive resins are transparent to electromagnetic and radio signal interference.



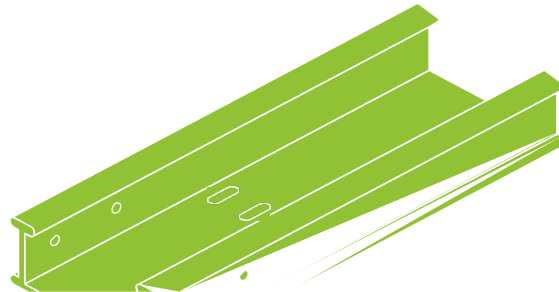
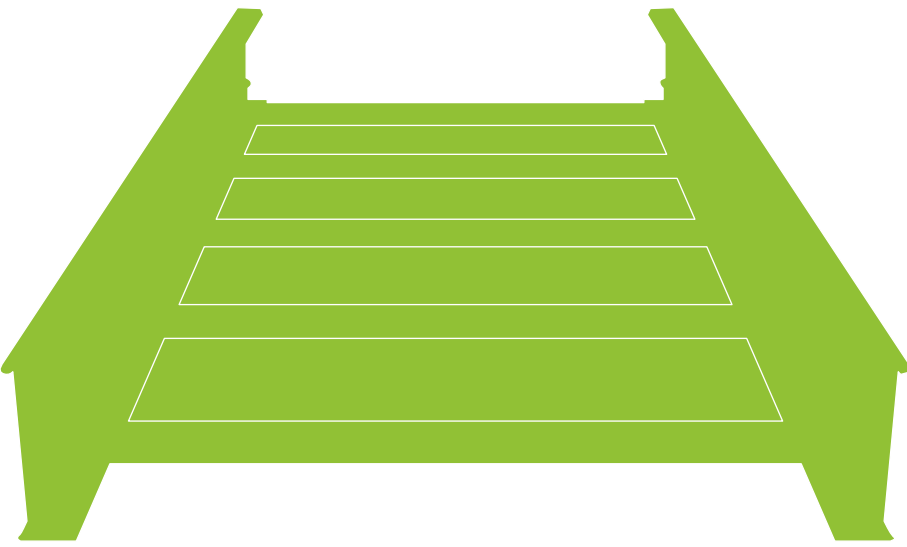
## QUICK AND EASY INSTALLATION

Installation is simple and some items can be fabricated or modified on site, reducing the complications caused by late project changes. Installation and modifications are carried out with standard tools.

# Comparison of FRP vs Metal

FRP products have many advantages, compared to Metal some of which are shown below.

Conditions	FRP	Metal
<b>Corrosion Resistance</b>	Excellent corrosion resistance against sea water and most chemical fumes	Poor corrosion resistance, pitting takes place even in SS or aluminium in sea water. Galvanic Corrosion takes place between Stainless Steel trays and MS supports
<b>Earthing</b>	NO earthing required.	YES earthing is must and cost additional charges
<b>Hot Working</b>	No Hot working, all assembly by Nut & Bolts	Hot working , welding cutting and joining requires special permission in hazardous areas
<b>Conductivity</b>	100% Non-Conductive	Conductive
<b>Light Weight</b>	Sp.gr. 1.9, 1/4th that of steel, even lighter than Aluminium(sp.gr.2.8), just one person required to lift a big size cable ladder, so very easy and fast Installation, saving time and money	Very heavy, 4 times to GRP/FRP, hence crane or 3 people required to lift a cable ladder
<b>Fire Retardant</b>	Meets most stringent offshore fire resistance norms as per British, ASTM and UL specifications	In heavy fire even steel de-shapes and needs replacement
<b>Risk of cable damage</b>	Very low, as being plastics have much less hardness and even its sharp edges cannot damage a cable	When any site modification is done, sharp edges are created in metal which can cause damage to cables and pose risk of current.
<b>High insulation and Safe</b>	No earthing of cable tray is required as it has high Insulation value. In case of any cable stripping, the tray being Insulated is safe for the Humans.	Earthing is must, hence cost of earthing increases overall cost, which is not generally considered when evaluating.
<b>UV Resistance</b>	All GRP/FRP cable Trays are made from very high U.V. additives, in addition to special surfacing Veils for glass blooming prevention, and carbon black for additional U.V protection	N/A
<b>First Time Cost</b>	FRP/GRP cable trays are competitive to SS trays with all above advantages	SS trays are very costly compared to GRP/FRP Trays
<b>Antistatic</b>	Cable trays are available in antistatic option as well for oil hazardous areas on demand, thus safe even in hydrocarbon atmosphere.	N/A
<b>Part Consolidation</b>	As GRP/FRP is extruded section, inbuilt ribs for reinforcement, collars for fixing covers are possible in single section	This is not possible in metal, and if welding is done it looks very bad.
<b>Installation Cost</b>	Very low, as lighter in weight hence only one man can lift, and very easy to cut and fabricate at site, thus faster installation and easy site adjustment and modifications	HIGH, needs 2-3 persons or special equipment to lift, also difficult to cut and refabricate as per site requirement as cutting takes time.



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