HORN

V.3.0.01042025

2025

FRP structures
Cable tray
Roofing sheets

Cable tray | Product Portfolio

www.hornfrp.com.co
www.hornfrp.com

HORN®

About us

We are CAVAR S.A., an industrial company with 40 years of expertise. Our dedication to the job, commitment to innovation, and the drive to generate systemic value for both the industry and society define who we are.

We are in search of

We are proactively harnessing the skills and capabilities of our employees to cultivate a customer service culture. This commitment allows us to deliver a broad range of offerings to various industrial sectors, including telecommunications.

Future direction

At HORN, our vision is to revolutionize the construction industry by applying innovative solutions through the use of composite materials. Our goal is to strengthen our organization globally, emphasizing the promotion of both aesthetic and functional value through design.

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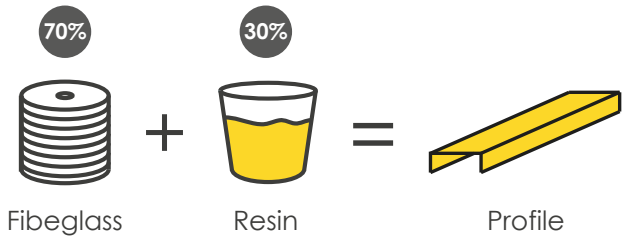
Fiber Reinforced Polyester
FRP

What is FRP?



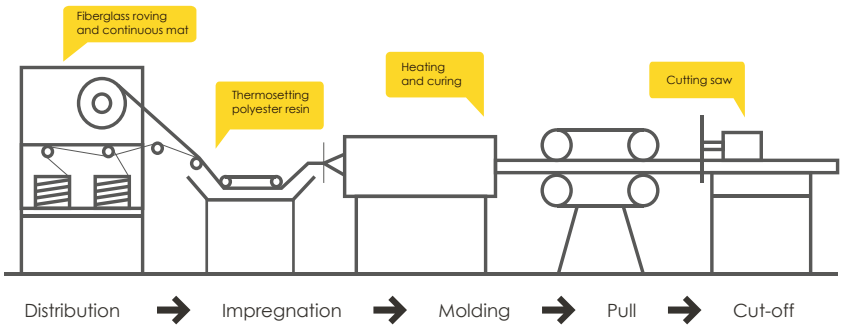
“Fiber Reinforced Polyester (FRP) is a composite material formed by combining thermosetting polyester resin with glass fibers, yielding a product with enhanced mechanical properties.”

Features of Fiberglass Composites

	FRP	STEEL	ALUMINUM	WOOD
Corrosion resistance	**Highest**	Low	Medium	High
Mechanical strength	**High**	High	Medium	Low
Weight	**Low**	High	Low	Medium
Electrical conductivity	**Lowest**	High	High	Low
Thermal conductivity	**Lowest**	High	Highest	Low
Electromagnetic Transparency	**Highest**	Low	Medium	High
Maintenance Costs	**Low**	High	Medium	High

Manufacturing Process

Pultrusion
Process



Chemical Resistance

The following table shows the maximum operating temperatures that chemically resistant FRP elements can withstand, manufactured with Polyester and Vinylester resin. Some chemical agents are listed with their respective concentrations.

Chemical Resistance Table			
Chemical Agent	**Concentration %**	**Polyester resin**	**Vinyl ester resin**
		Max Temperature °C	**Max Temperature °C**
Hydrochloric Acid	20	35	70
Chromic Acid	10	45	45
Hydrofluoric Acid	20	25	35
Nitric Acid	10	25	60
Sulfuric Acid	65	30	70
Ammonia	5	25	60
Mercury	100	60	100
Sodium hydroxide	<1	NR	75
Calcium oxide	***	35	60
Hydrochloric Acid	GAS 100	65	100
Sodium Bicarbonate	SAT	50	95
Aluminum Nitrate	10	40	70
Potassium Permanganate	SAT	NR	60
Copper Sulfate	SAT	50	95
Sea Water	***	50	95
Chlorine	Gas	65	100
Carbon Monoxide	Gas	70	110
Hydrogen Sulfide (Gas)	100	60	65
Citric Acid	SAT	50	95
Stearic Acid	***	45	90
Ethyl Alcohol	95	25	30
Brake Fluid	***	30	35
Glycerin	100	60	90
Diesel Oil	100	35	50
Lubricating Oil	100	50	70
Mineral Oil	100	50	100
Transformer Oil	100	50	100
Naphtha	100	25	40
Paraffin	100	30	60
Tallow	100	70	110
Urea	2	40	90

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The following table shows the maximum operating temperatures that chemically resistant FRP elements can withstand, manufactured with Polyester and Vinylester resin. Some chemical agents are listed with their respective concentrations.

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Nitric Acid	10	25	60
Sulfuric Acid	65	30	70
Ammonia	5	25	60
Mercury	100	60	100
Sodium hydroxide	<1	NR	75
Calcium oxide	***	35	60
Hydrochloric Acid	GAS 100	65	100
Sodium Bicarbonate	SAT	50	95
Aluminum Nitrate	10	40	70
Potassium Permanganate	SAT	NR	60
Copper Sulfate	SAT	50	95
Sea Water	***	50	95
Chlorine	Gas	65	100
Carbon Monoxide	Gas	70	110
Hydrogen Sulfide (Gas)	100	60	65
Citric Acid	SAT	50	95
Stearic Acid	***	45	90
Ethyl Alcohol	95	25	30
Brake Fluid	***	30	35
Glycerin	100	60	90
Diesel Oil	100	35	50
Lubricating Oil	100	50	70
Mineral Oil	100	50	100
Transformer Oil	100	50	100
Naphtha	100	25	40
Paraffin	100	30	60
Tallow	100	70	110
Urea	2	40	90

Physical and Mechanical Properties

The profiles are manufactured using the pultrusion process (hot polymerization of a continuously pulled profile through a heated die), and contain up to 70% fiberglass, ensuring high mechanical strength. Their structure, composed of continuous directional fiberglass strands, provides excellent impact resistance and strength (no permanent deformation occurs under overload conditions).

Our FRP (Fiberglass Reinforced Plastic) profiles offer multiple advantages, such as exceptional stiffness, corrosion resistance, electrical insulation, and lightweight properties. HORN® profiles are engineered for use as structural support elements, offering full safety and reliability in demanding industrial applications.

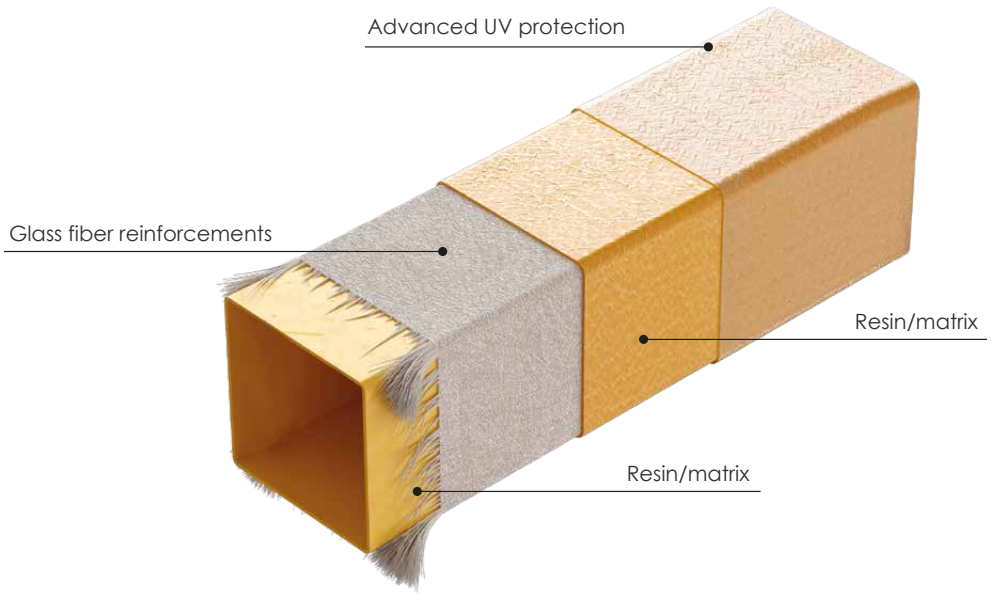
FRP Material Properties			
Mechanical Properties	**Test Standard**	**Units**	**Value**
Longitudinal Tensile Strength	ASTM D638	MPa	600
Longitudinal Tensile Modulus	ASTM D638	GPa	30
Longitudinal Flexural Strength	ASTM D790	MPa	700
Longitudinal Flexural Modulus	ASTM D790	GPa	20
Transverse Flexural Strength	ASTM D790	MPa	150
Transverse Flexural Modulus	ASTM D790	GPa	7
Longitudinal Compressive Strength	ASTM D695	MPa	500
Longitudinal Compressive Modulus	ASTM D695	GPa	20
Transverse Compressive Strength	ASTM D695	MPa	100
Transverse Compressive Modulus	ASTM D695	GPa	4
Interlaminar Shear Strength	ASTM D 5379	MPa	60
Longitudinal Poisson's Ratio	ASTM 3039	mm/mm	0,25
IZOD Impact Strength	ASTM D256	J/m	2960
Physical Properties	**Test Standard**	**Units**	**Value**
Barcol Hardness	ASTM D2583		45
Water Absorption	ASTM D570	% Max	0,6
Density	ASTM D792	kg/cm3	2,0 -2,2
Specific Weight	ASTM D792	N/cm3	20 - 22
Dielectric Strength (AC)	ASTM D149	KV/mm	13
Leakage Current	ASTM D149	uA	88
Flammability Classification	UL-94		V0
Flame Spread Index	ASTM E-84		25 Max

Information about the components of FRP profiles

Material	% by weight
Polymerized polyester resin	*30% al 40%*
Glass fibers	*70% al 60%*
Calcium carbonate and other components	*10 al 20%*

Technical Characteristics of the Materials

Fixed Vertical Ladder



Advanced UV Protection
Our fiberglass profiles incorporate three layers of UV protection. First, the fiberglass reinforcements—which form the structural core of the ladders—are encapsulated with a polyester surface veil. This veil creates a resin-rich outer layer that protects the fibers from blooming. Additionally, UV absorbers are formulated into the resin to prevent ultraviolet light from degrading the polymer matrix.
Finally, the profiles are coated with a high-performance aliphatic polyurethane topcoat, which provides long-lasting protection against harmful sun exposure.
UV testing, which involved alternating cycles of light and humidity every four hours for 2,500 hours, showed no reduction in flexural strength.

Resin/Matrix
FRP profiles are manufactured using a thermoset resin system that offers superior hardness and mechanical strength. Once cured, thermoset resins are highly durable and resistant to moisture and harsh environments.

Glass Fiber Reinforcements
All profiles are manufactured using electrical-grade E-glass reinforcements in the form of rovings, continuous filament mat (CFM), or engineered E-glass fabrics. All E-glass reinforcements meet a minimum tensile strength of 290 ksi (2000 MPa) in accordance with ASTM D2343.

Key Advantages of FRP

Corrosion Resistance and Mechanical Strength
FRP profiles contain a high percentage of fiber-glass in their structural components, which provi-des outstanding strength-to-weight ratio and excellent longitudinal stiffness.

Lightweight
hanks to their weight—approximately half that of steel trays—transport and handling are simple and do not require heavy equipment, which results in significant energy savings.

Electronic Transparency

The material's properties do not affect radio or electromagnetic frequencies, enabling its use in sensitive environments and applications.

Pruebas & ensayos relacionados

ASTM Test applied	Name	Description	Was the test conducted?
D638 - 14	*Standard test method for tensile properties of plastics*	*Tensile Test Method for Plastics*	Yes
D790 - 17	*Standard test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials*	*Method for Flexural Testing of Reinforced and Unreinforced Plastics*	Yes
D256 - 10	*Standard test methods for determining the izod pendulum impact resistance of plastics*	*Method for Impact Testing of Plastics*	Yes
D695 - 15	*Standard test method for compressive properties of rigid plastics*	*Method for Testing the Compression Properties of Plastics*	Yes
D2583 – 13A	*Standard test method for indentation hardness of rigid plastics by means of a barcol impressor*	*Method for Barcol Hardness Testing*	Yes
D732 – 17 / D953	*Standard test method for shear strength of plastics by punch tool*	*Method for Testing Shear Resistance Using a Punch Tool*	Yes
D792 - 13	*Standard test methods for density and specific gravity (relative density) of plastics by displacement*	*Method for Determining the Density of Plastics*	Yes
D696 - 16	*Standard test method for coefficient of linear thermal expansion of plastics between −30°c and 30°c with a vitreous silica dilatometer*	*Method for Determining the Coefficient of Thermal Expansion of Plastics*	Yes*
D570 - 98	*Standard test method for water absorption of plastics*	*Method for Testing Water Absorption*	Yes
D149 - 20	*Standard test method for dielectric breakdown voltage and dielectric strength of solid electrical insulating materials at commercial power frequencies*	*Method for Dielectric Testing*	Yes
E - 84	*Flame Spread*	*Method for Testing Flame Propagation*	Yes
UL - 94	*Flammability Classification*	*Method for Flammability Classification*	Yes

*Note:
The linear thermal expansion coefficient for HORN® profiles is based on the percentage change in material length per degree of temperature change, whether solid or liquid heated; specifically, 0.0000170 in per degree °C increase in temperature for pultruded profiles with isophthalic polyester resin. For this reason, HORN® cable trays do not require additional elements such as expansion joints, which are necessary for metallic trays due to their higher thermal expansion coefficient, which can reach up to 0.000079 in per degree °C increase in temperature.

Cable tray
FRP

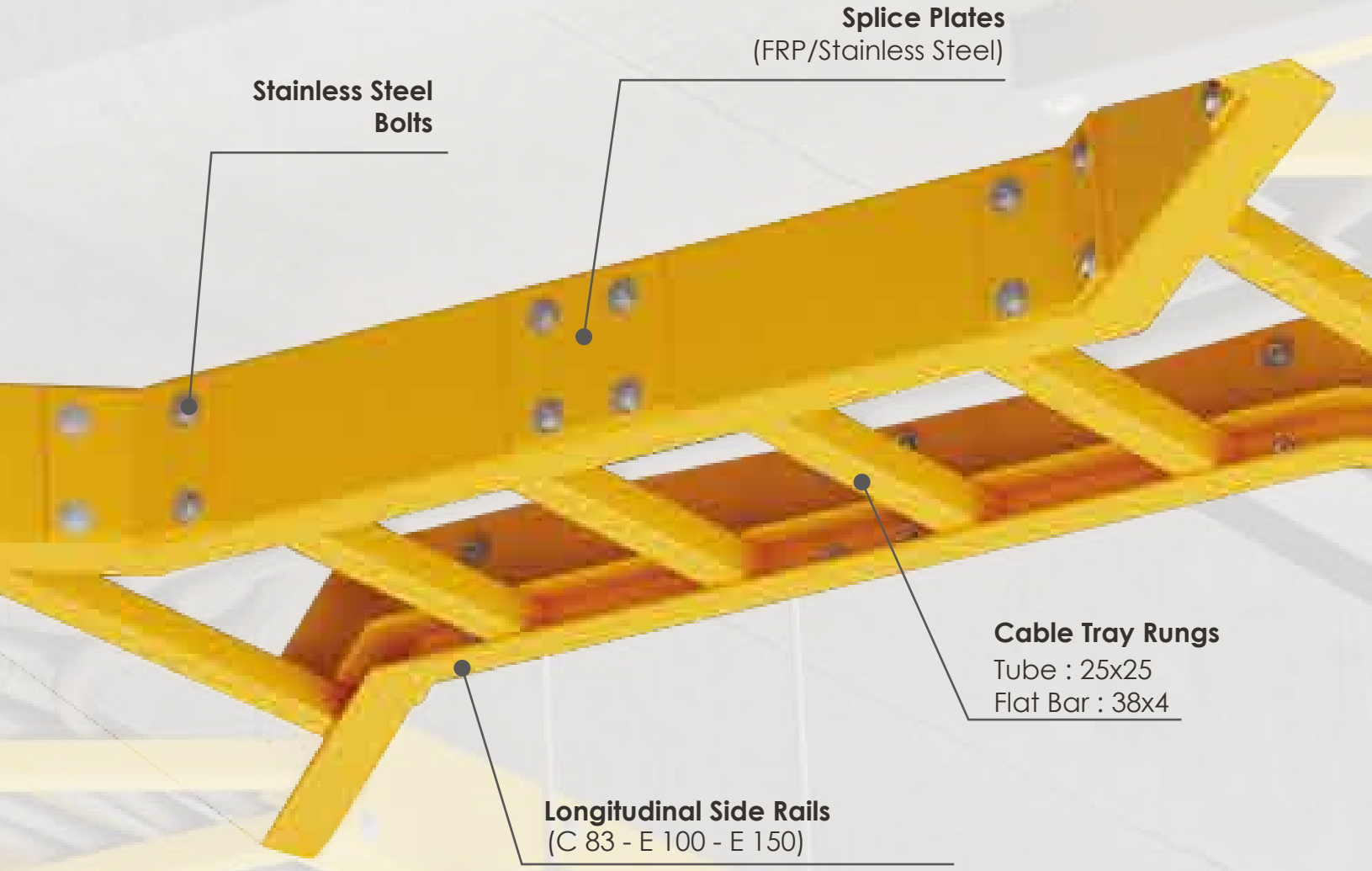
Fiberglass cable trays are engineered to meet internationally recognized standards and specific project requirements. They come in different kinds of resin and shapes to handle tough environments. Lightweight yet durable, fiberglass trays offer numerous advantages over galvanized or stainless steel, including corrosion resistance. These trays are the best choice for tough and corrosive environments because they meet very high quality standards and have experts in composites.

certecnica
Más que certificaciones técnicas
PRODUCTO CERTIFICADO

Certificado No. 1519
RETIE 2013 / UL 568:2019
Acreditación ONAC 21-CPR-002
ISO/IEC 17065:2012

Product configuration

Cable tray



Standard ladder-type cable trays are composed of two longitudinal parallel profiles: type “C” (C83x30x4) and type “E” (E100x30x4, E150x40x4), joined at the bottom by a flat bar profile (38x4) for type “C” and a square profile (25x25x3) for type “E”.

Cable tray design

Cable tray

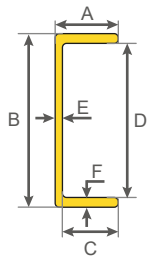
The following diagrams provide dimensional specifications for the typical tray variations based on the required type of longitudinal profile:

FRP C83 Structural Profile

Front View – Cable Tray

Tray Profile Section

C-Type Profile Front View



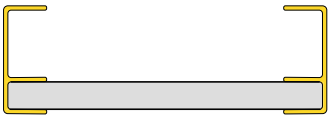
Dimension Table – C Profile Type

	A	B	C	D Useful Area	E	F
Value	30.4	83.6	26.4	74.2	3.5	4.7

Dimensions in cm, tolerance ±5 mm

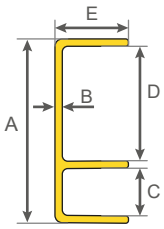
FRP E100 Structural Profile

Front View – Cable Tray



Tray Profile Section

E100-Type Profile Front View

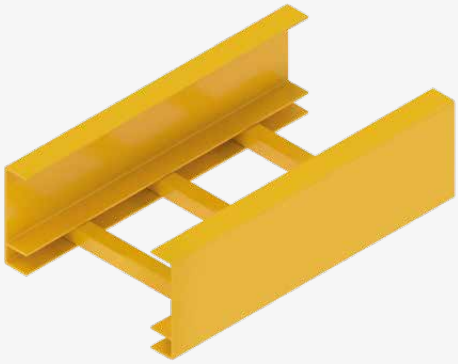


Dimension Table – E100 Profile Type

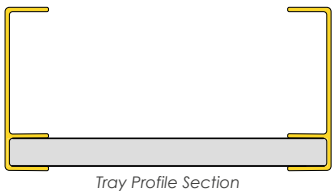
	A	B	C	D Useful Area	E
Value	10.0	4.0	2.6	6.2	4.0

Dimensions in cm, tolerance ±5 mm

FRP E150 Structural Profile

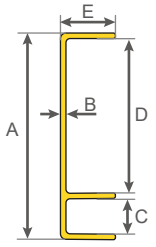


Front View – Cable Tray



Tray Profile Section

E150-Type Profile Front View



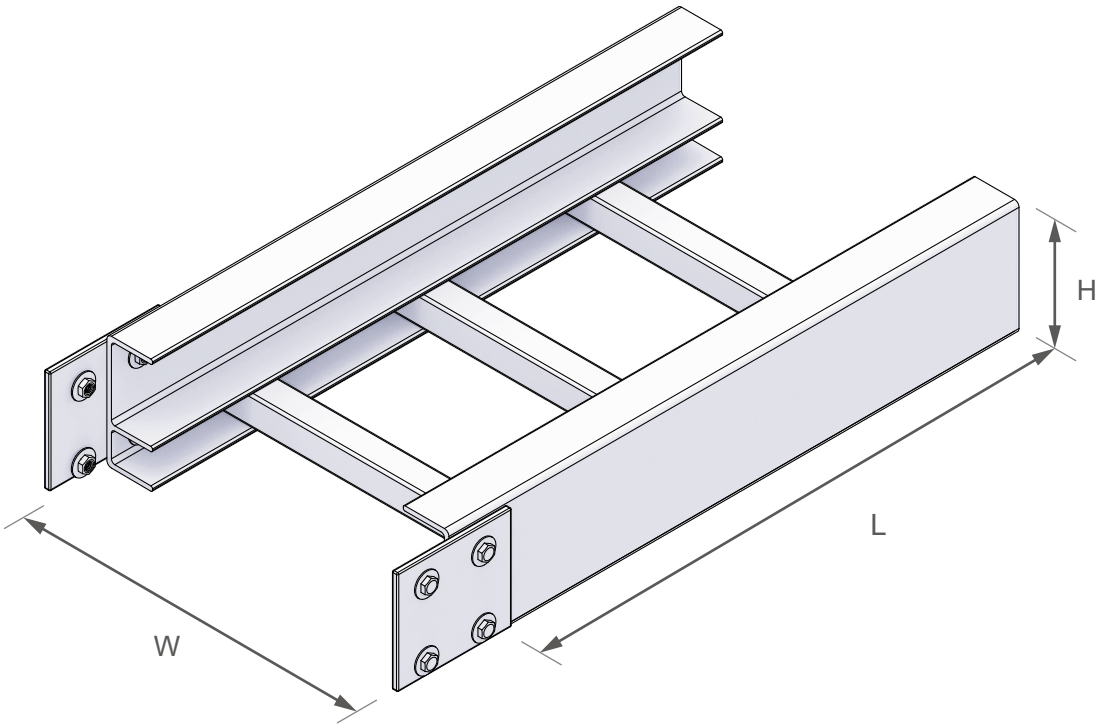
Dimension Table – E150 Profile Type

	A	B	C	D Useful Area	E
Value	15.0	0.4	2.6	11.2	4.0

Dimensions in cm, tolerance ±5 mm

The following table shows the tray support spacing, which may vary depending on the specific requirements of each project, as follows:

Conventions
H: Height
W: Width
L: Length



Load Capacity Classification

Dimensional Reference Table According to Load Classification as Specified in the NEMA Standard.

Item	Reference	Description
1	Length between 0,5m y2,4m Width between 10cm y 30cm Height between 8cm y 9cm	FRP Ladder-Type Cable Tray Class A
2	Length between 0,5m y 3,0m Width between 10cm y 40cm Height between 10cm y 11cm	FRP Ladder-Type Cable Tray Class B
2	Length between 0,5m y 6,om Width between 10cm y 90cm Height between 14cm y 15cm	FRP Ladder-Type Cable Tray Class C

Working Load Capacity

FRP ladder-type cable trays are classified into three categories according to the working load for which they are designed.

Classification According to NEMA FG-1 Standard

Class	Working Load	
	lbs/ft lineal	*Kg/m lineal*
A	50	74.4
B	75	111.6
C	100	148.8

Typological Classification Cable Trays

Cable tray

The following section presents the identification nomenclature that alphabetically links each tray type with its corresponding dimensions and variations.

Conventions

TR = Horizontal Ladder
CH = Horizontal Bend
CVI = Internal Vertical Bend
CVE = External Vertical Bend
CVA = Vertical Outside Bend
UT = Vertical Tee
UX = Horizontal Cross
RD = Right Hand Reducer
RI = Left Hand Reduce
RR = Center Reducer

Horizontal ladder nomenclature

Tray Type	Height	Width *cm*	Spacing Between Rungs *mm*	Longitud *ft*
TR	83 100 150	10 30 40 90	150 225 300 450	8 10 12 14 16 18 20

Horizontal Bend nomenclature

Tray Type	Height	Width *cm*	Angle (°)	Radius *mm*
CH	83 100 150	10 30 40 90	30 45 60 90	r300 r600 r900

Vertical Bends Nomenclature

Tray Type	Height	Width *cm*	Angle (°)	Radius *mm*
CVI CVE CVA	83 100 150	10 30 40 90	30 45 60 90	r300 r600 r900

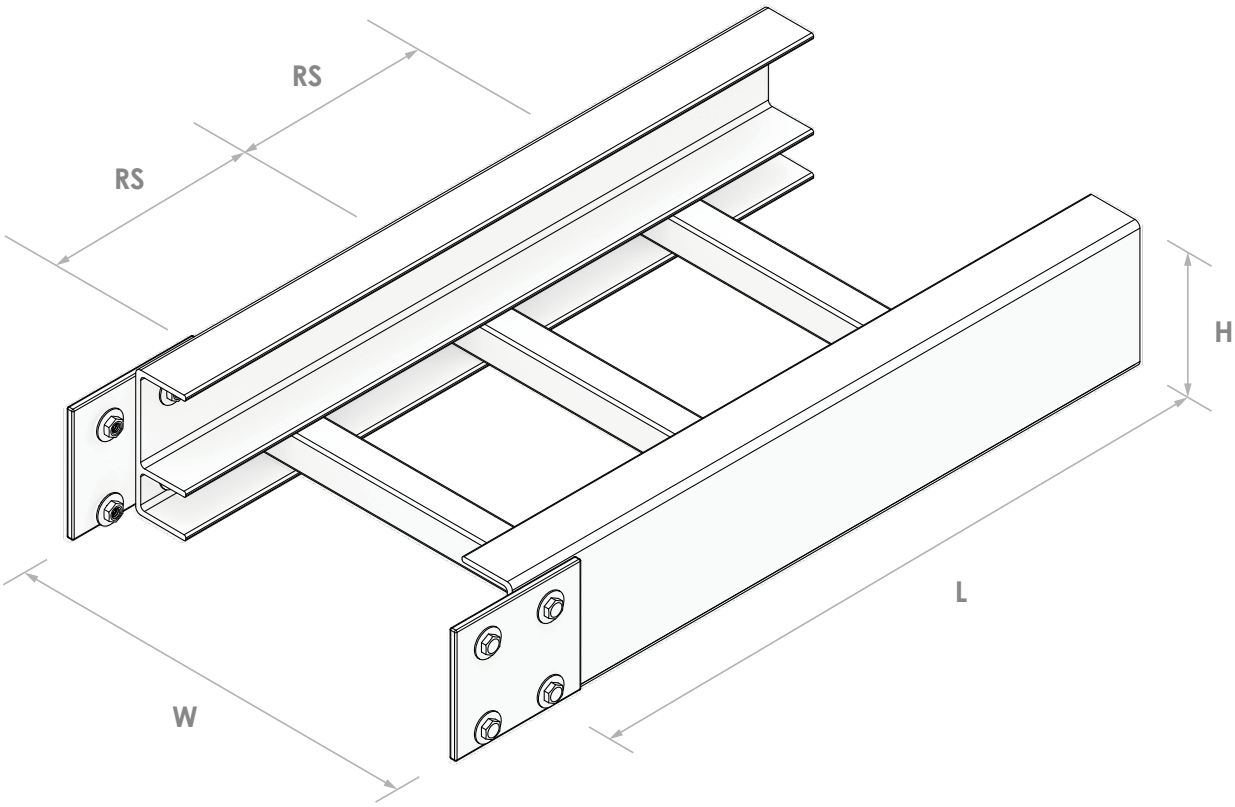
Nomenclature for T and X Connections

Tray Type	Height	Width *cm*	Radius *mm*
UT UX	83 100 150	10 30 40 90	r300 r600 r900

Note:
The length and width of tray types may vary according to customer requirements and are subject to design and engineering validation.

Typology
Cable tray

Conventions
H : Height
W : Width
L : Length
RS : Rung Spacing



Horizontal Ladder

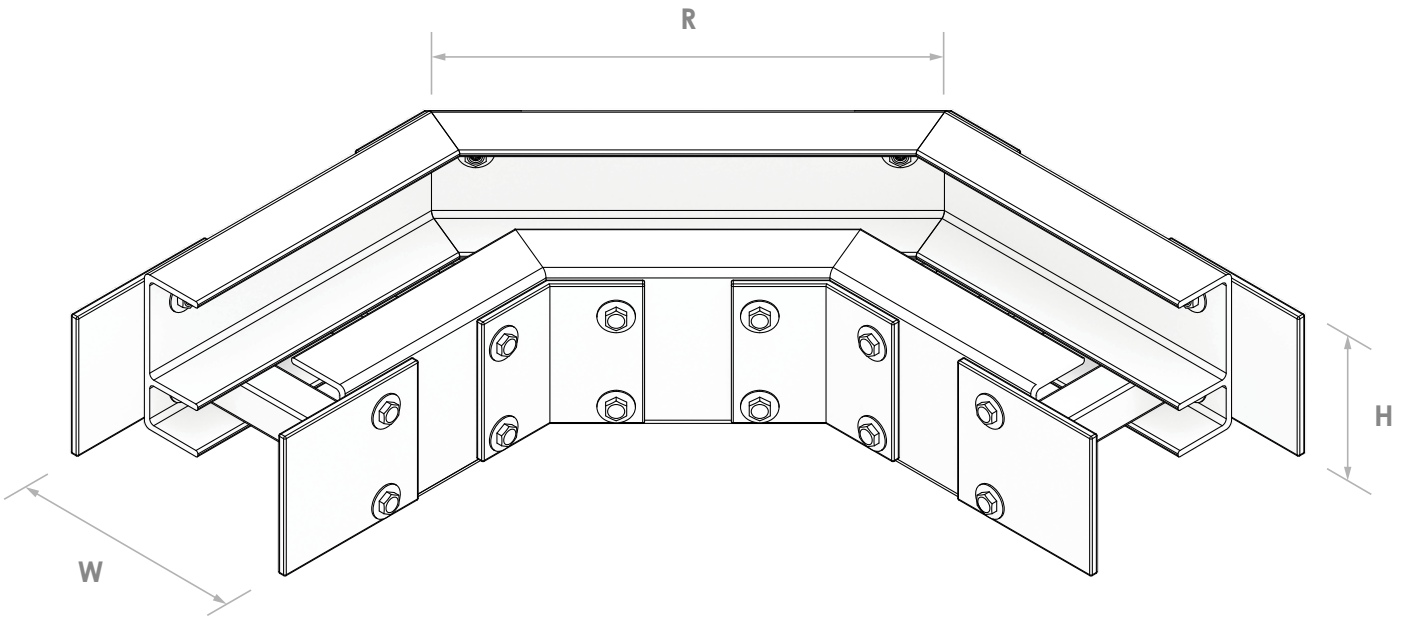
Horizontal ladder nomenclature

Type	Height	Width *cm*	Rung Spacing *mm*	Length *ft*
TR	83 100 150	10 30 40 90	150 225 300 450	8 10 12 14 16 18 20

Note:
Length, width, and rung spacing dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W : Width
R : Radius



Horizontal Bend

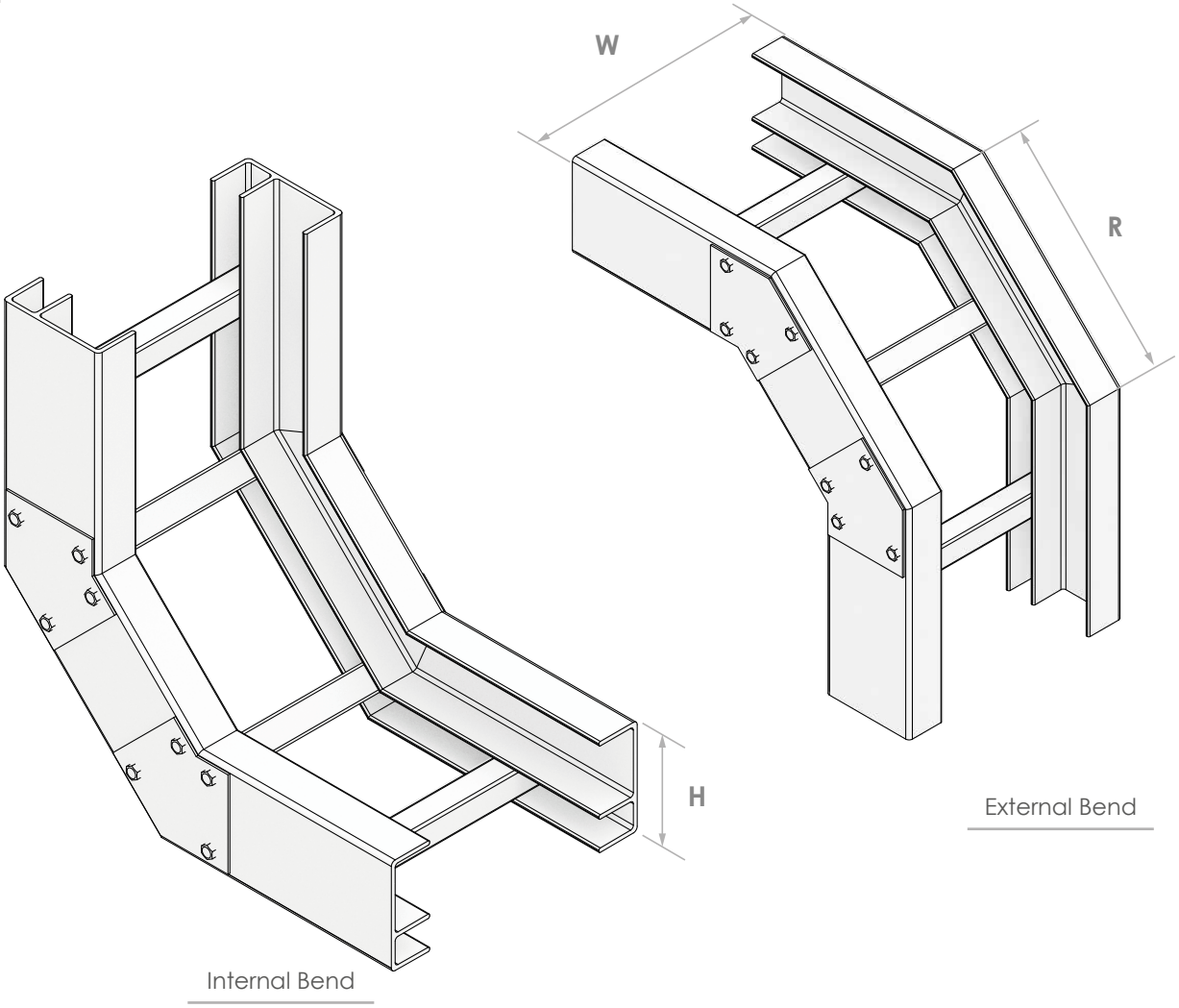
Horizontal Bend nomenclature

Type	Height	Width *cm*	Angle (°)	Radius *mm*
CH	83 100 150	10 30 40 90	30 45 60 90	r300 r600 r900

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W : Width
R : Radius



Vertical Bend

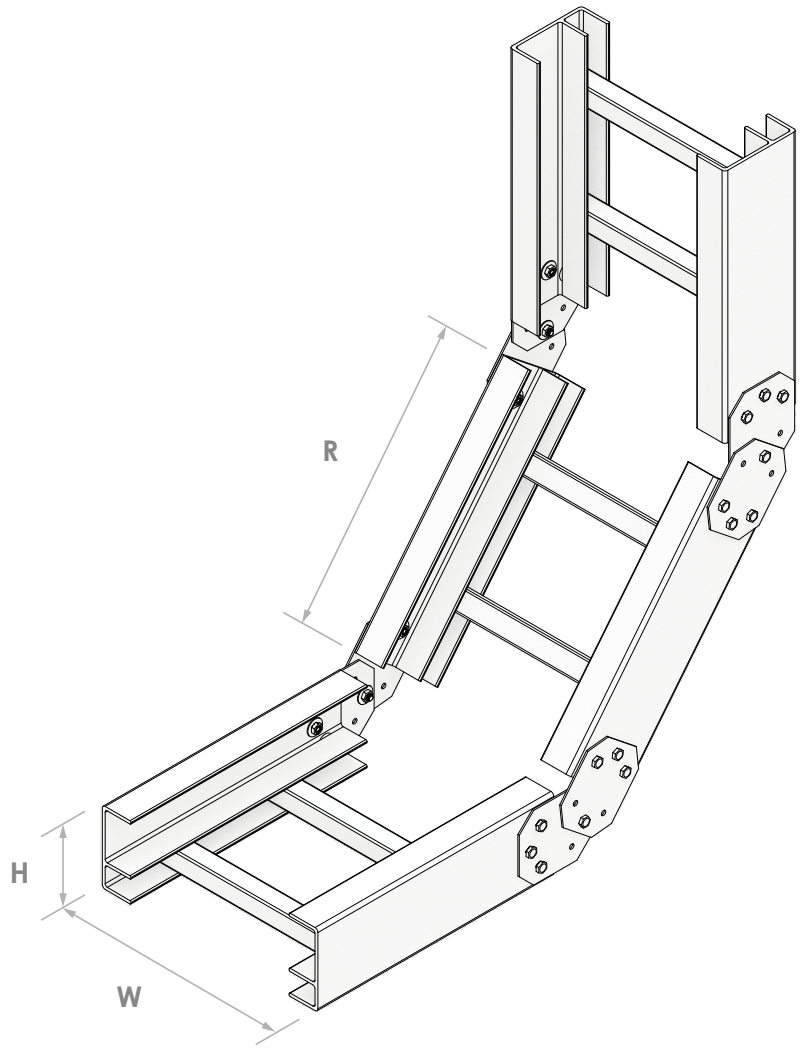
Vertical Bends Nomenclature

Type	Height	Width *cm*	Angle (°)	Radius *mm*
CVI CVE CVA	83 100 150	10 30 40 90	30 45 60 90	r300 r600 r900

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W : Width
R : Radius



Vertical Outside Bend

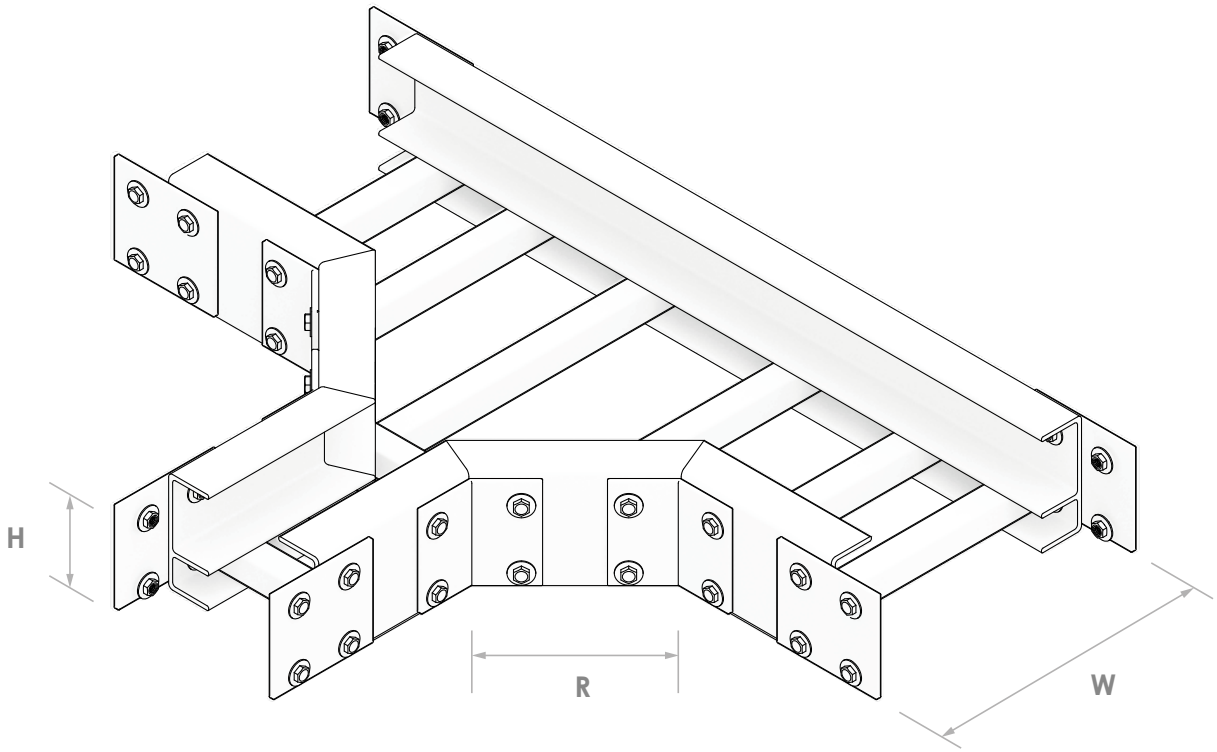
Vertical Outside Bend Nomenclature

Type	Height	Width *cm*	Angle (°)	Radius *mm*
CVI CVE CVA	83 100 150	10 30 40 90	30 45 60 90	r300 r600 r900

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W : Width
R : Radius



Horizontal Tee

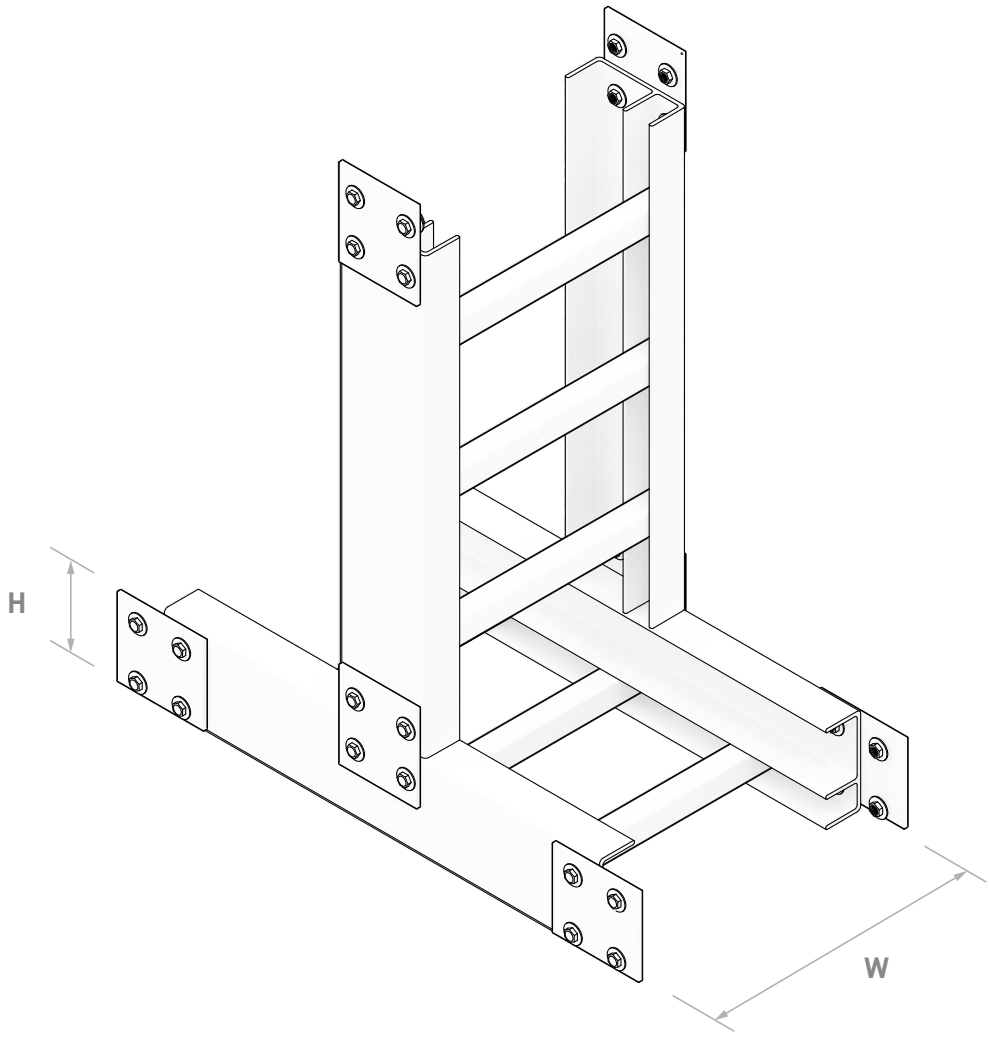
Nomenclature for T and X Connections

Type	Height	Width *cm*	Radius *mm*
UTH UTV UX	83 100 150	10 30 40 90	r300 r600 r900

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Tipológias
Cable tray

Conventions
H : Height
W : Width



Vertical Tee

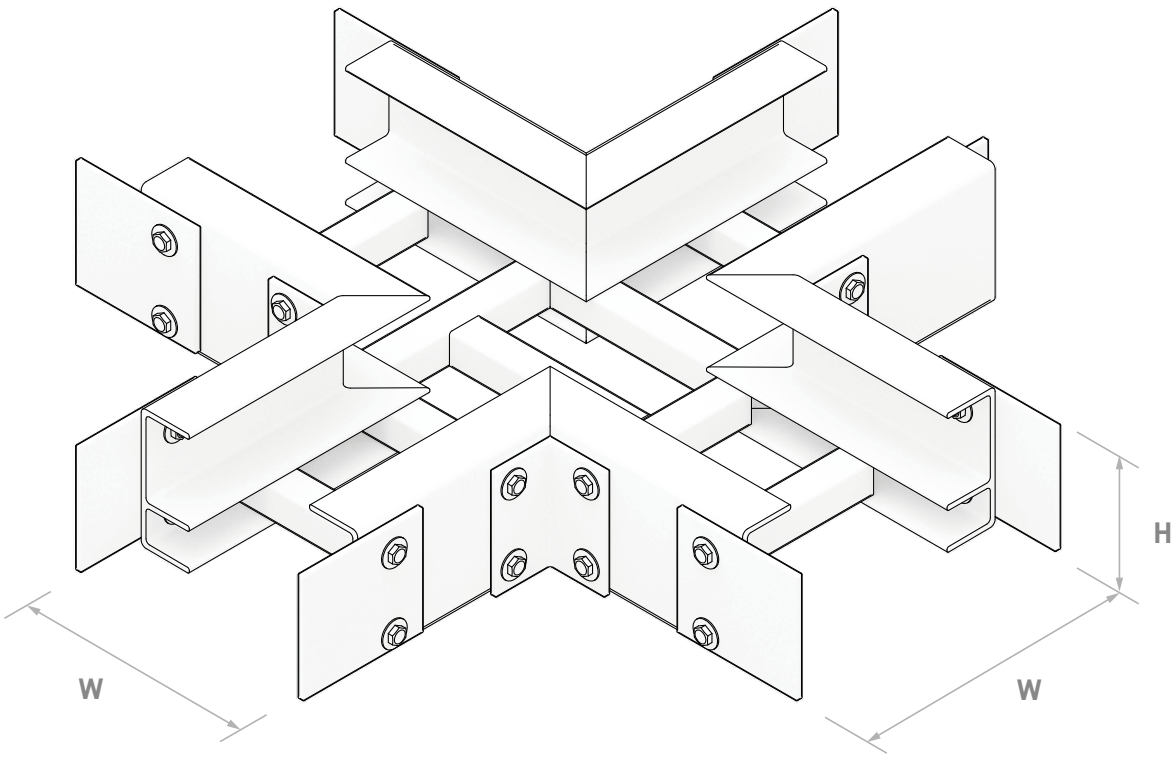
Nomenclature for T and X Connections

Type	Height	Width *cm*	Radius *mm*
UTH UTV UX	83 100 150	10 30 40 90	r300 r600 r900

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W : Width



Horizontal Cross

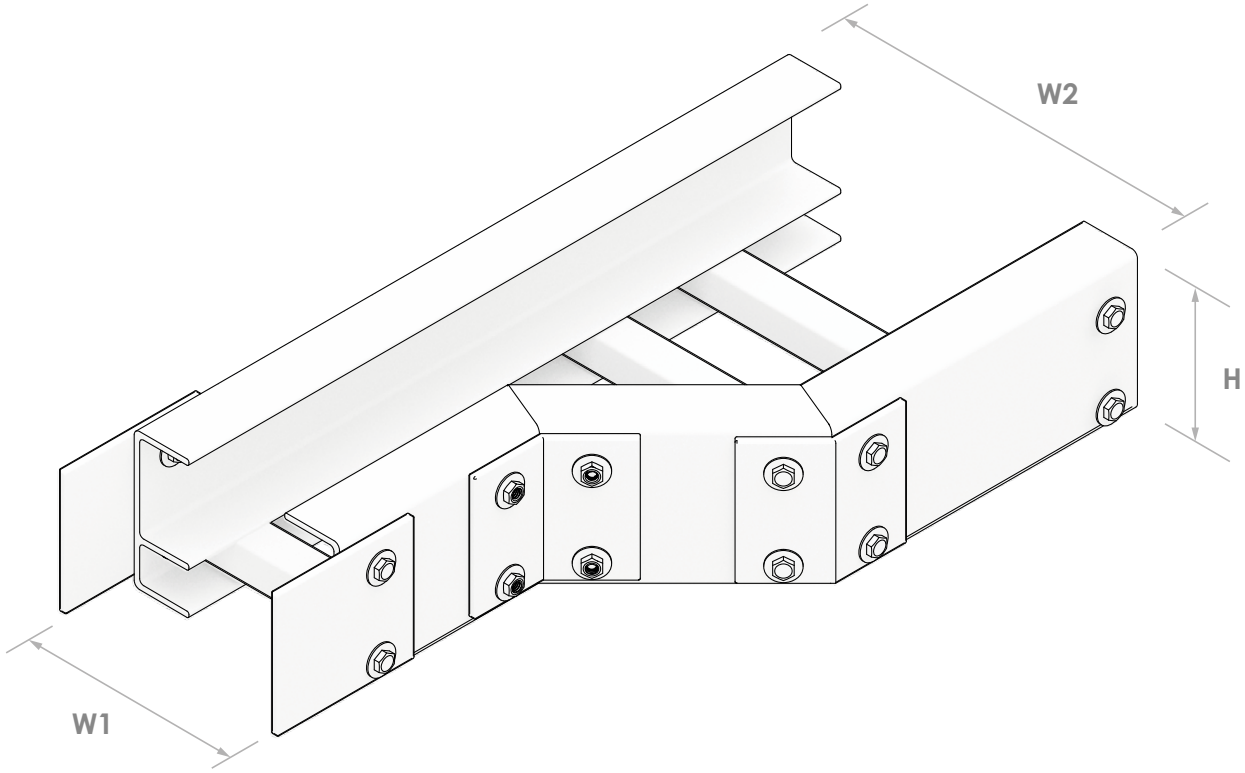
Nomenclature for T and X Connections

Type	Height	Width *cm*	Radius *mm*
UTH UTV UX	83 100 150	10 30 40 90	r300 r600 r900

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W1 : Width 1
W2 : Width 2



Left Hand Reducer

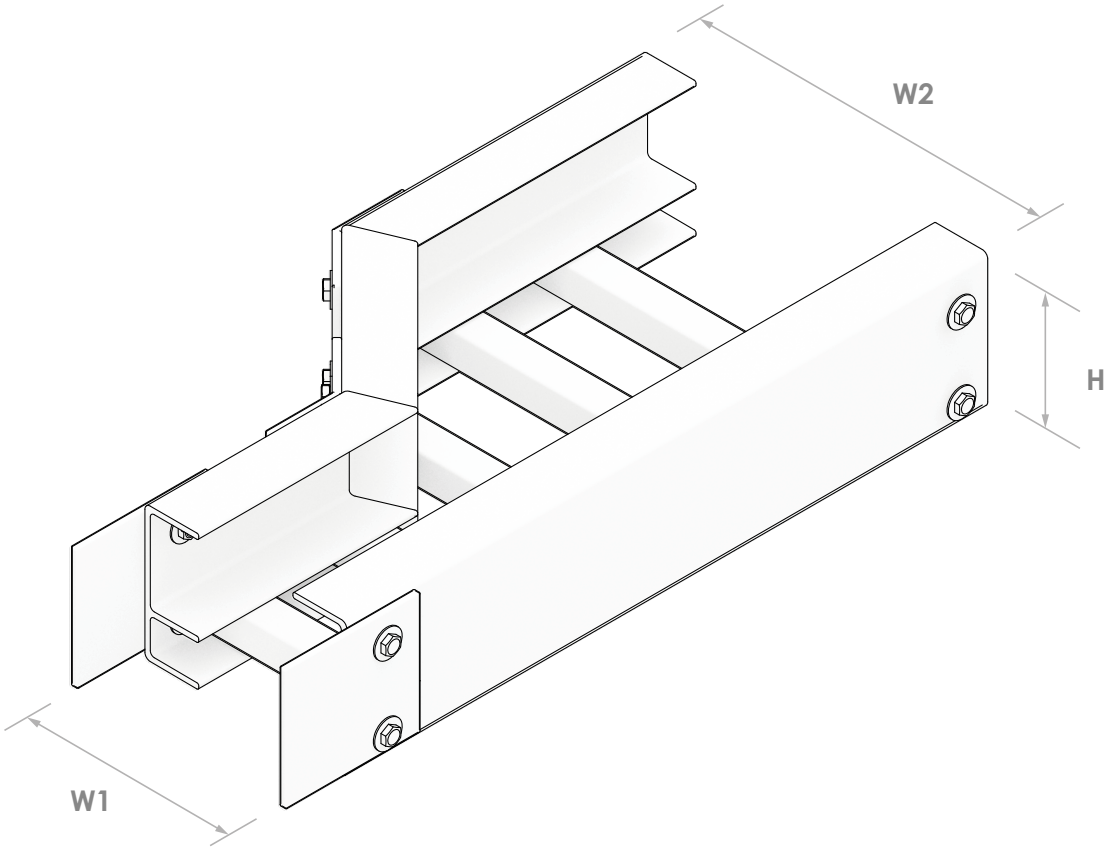
Left Hand Reduce Nomenclature

Type	Height	Width 1 *cm*	Type	Width 2 *cm*
RD RI RR	83 100 150	10 30 40 90	RD RI RR	10 30 40 90

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W1 : Width 1
W2 : Width2



Right Hand Reducer

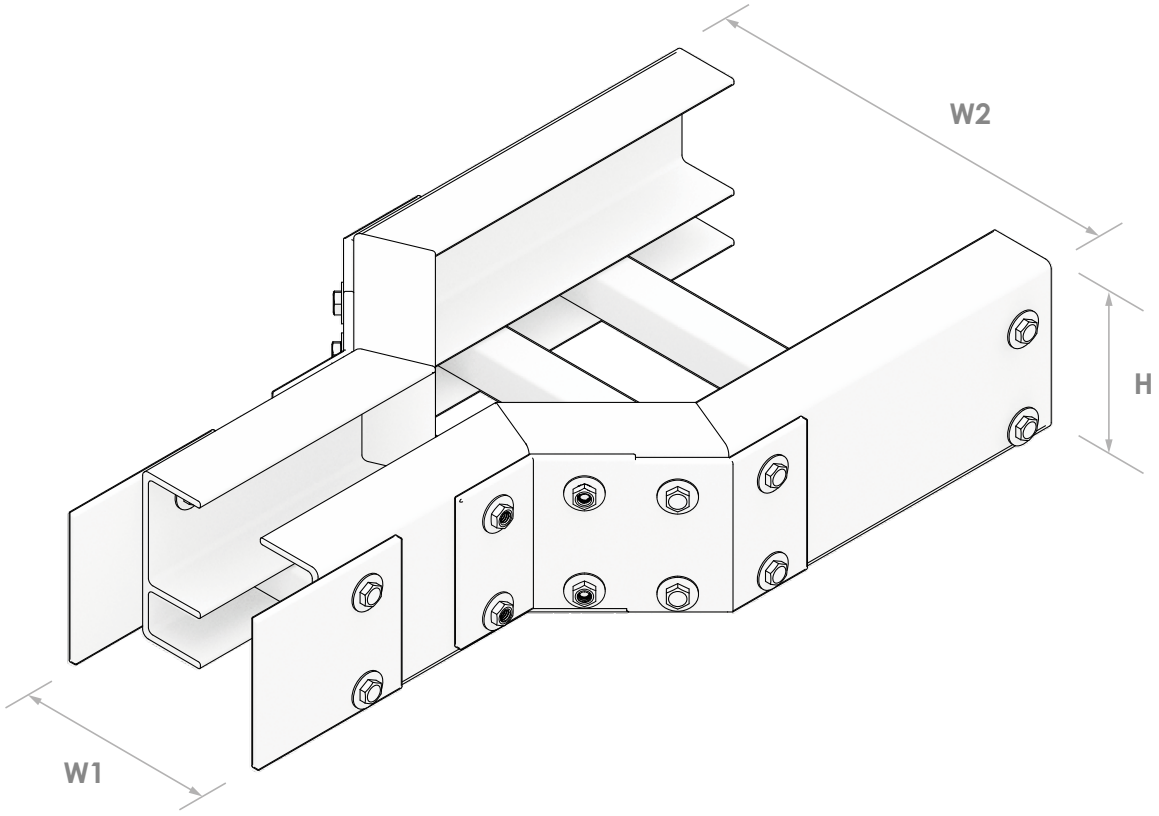
Right Hand Reducer Nomenclature

Type	Height	Width 1 *cm*	Type	Width 2 *cm*
RD RI RR	83 100 150	10 30 40 90	RD RI RR	10 30 40 90

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Typology
Cable tray

Conventions
H : Height
W1 : Width 1
W2 : Width 2



Center Reducer

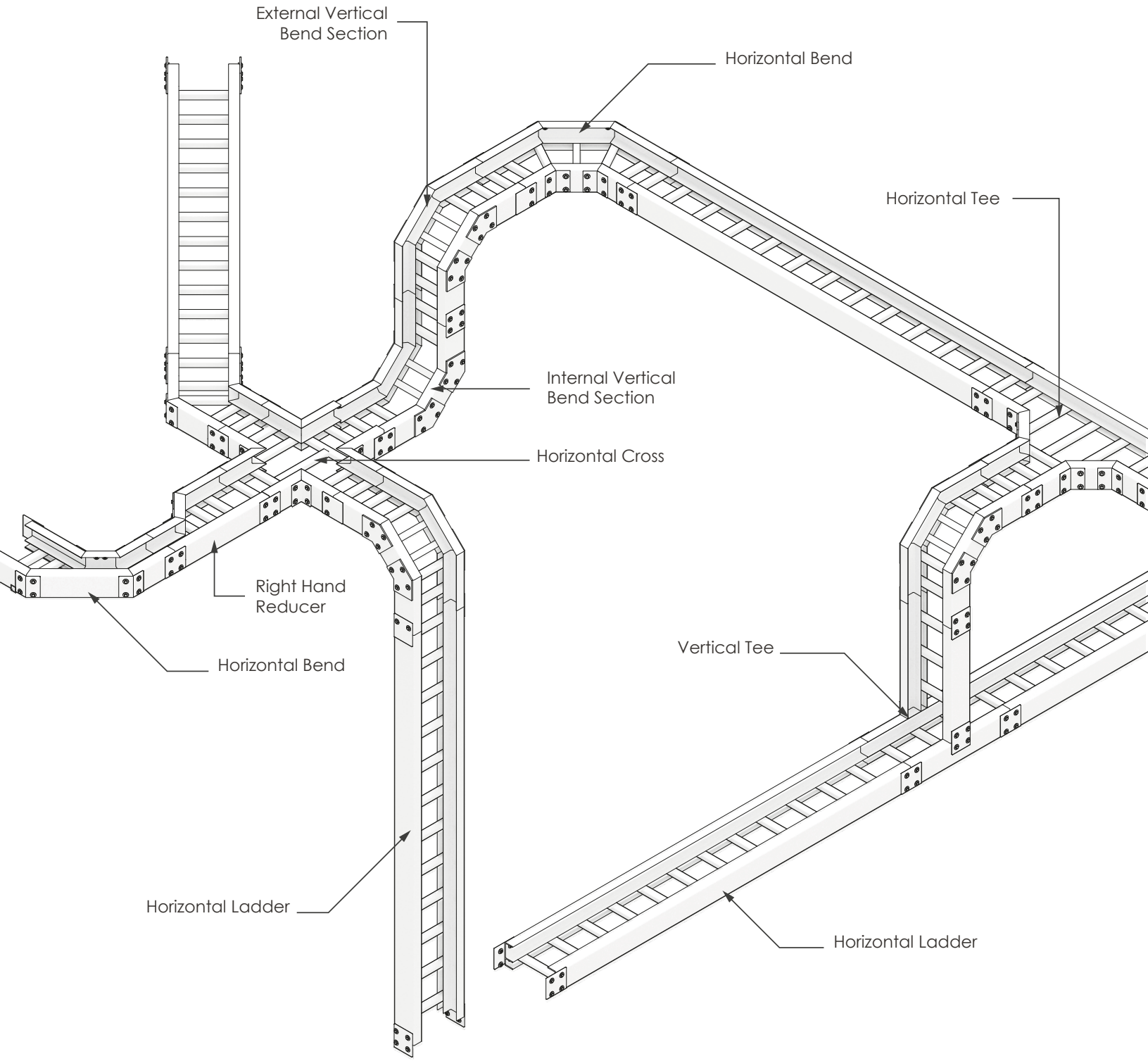
Center Reducer Nomenclature

Type	Height	Width 1 *cm*	Type	Width 2 *cm*
RD RI RR	83 100 150	10 30 40 90	RD RI RR	10 30 40 90

Note:
Width and curvature dimensions may vary according to customer requirements and are subject to design and engineering validation.
Each straight section of cable tray is supplied with its corresponding splice plates and fastening bolts.

Cable Tray System

Cable tray



Tray Connections

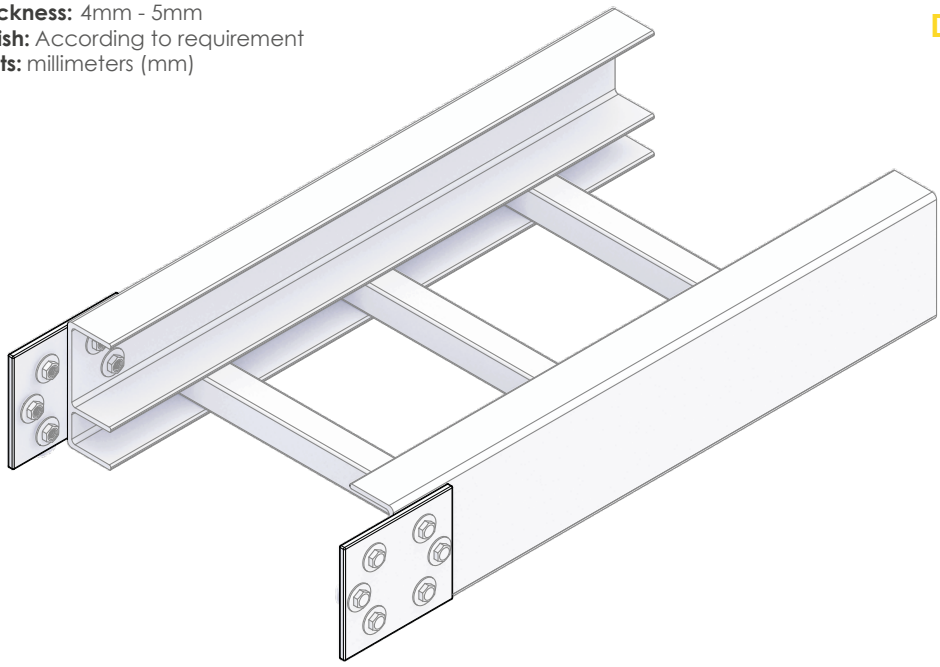
Cable tray

Tray Connections

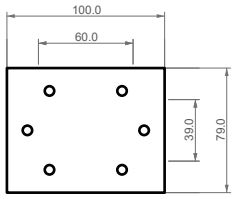
Cable tray

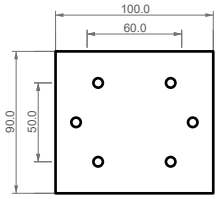
FRP Splicing Connectors

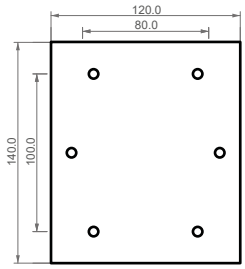
Material: Fiberglass Reinforced Polyester (FRP)
Thickness: 4mm - 5mm
Finish: According to requirement
Units: millimeters (mm)



Splice Plate Dimensions

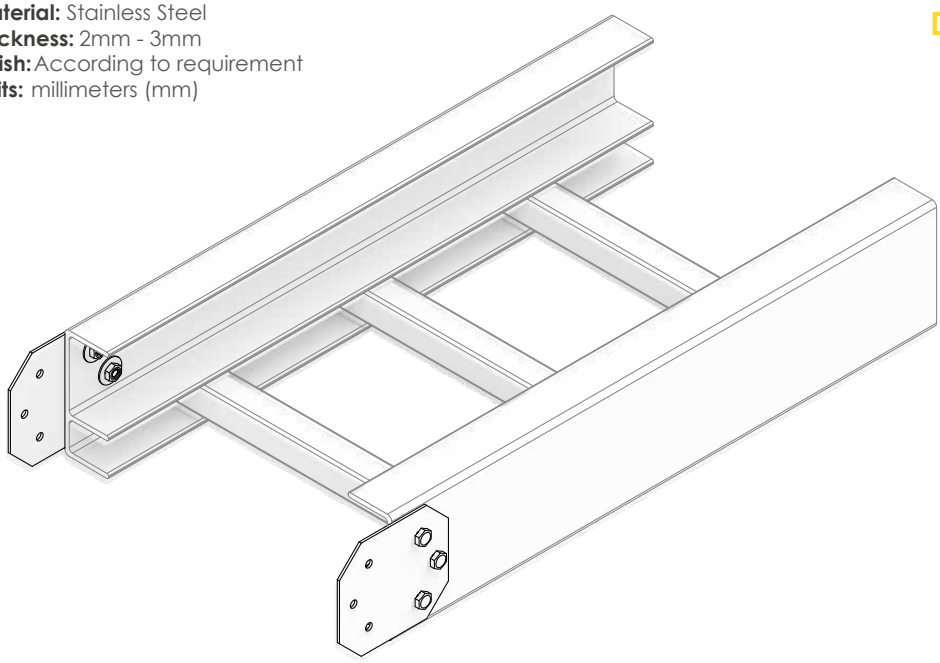




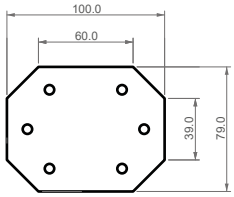


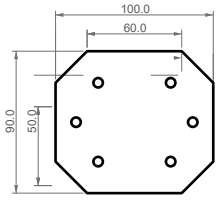
Stainless Splicing Connectors

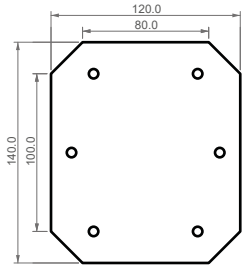
Material: Stainless Steel
Thickness: 2mm - 3mm
Finish: According to requirement
Units: millimeters (mm)



Splice Plate Dimensions





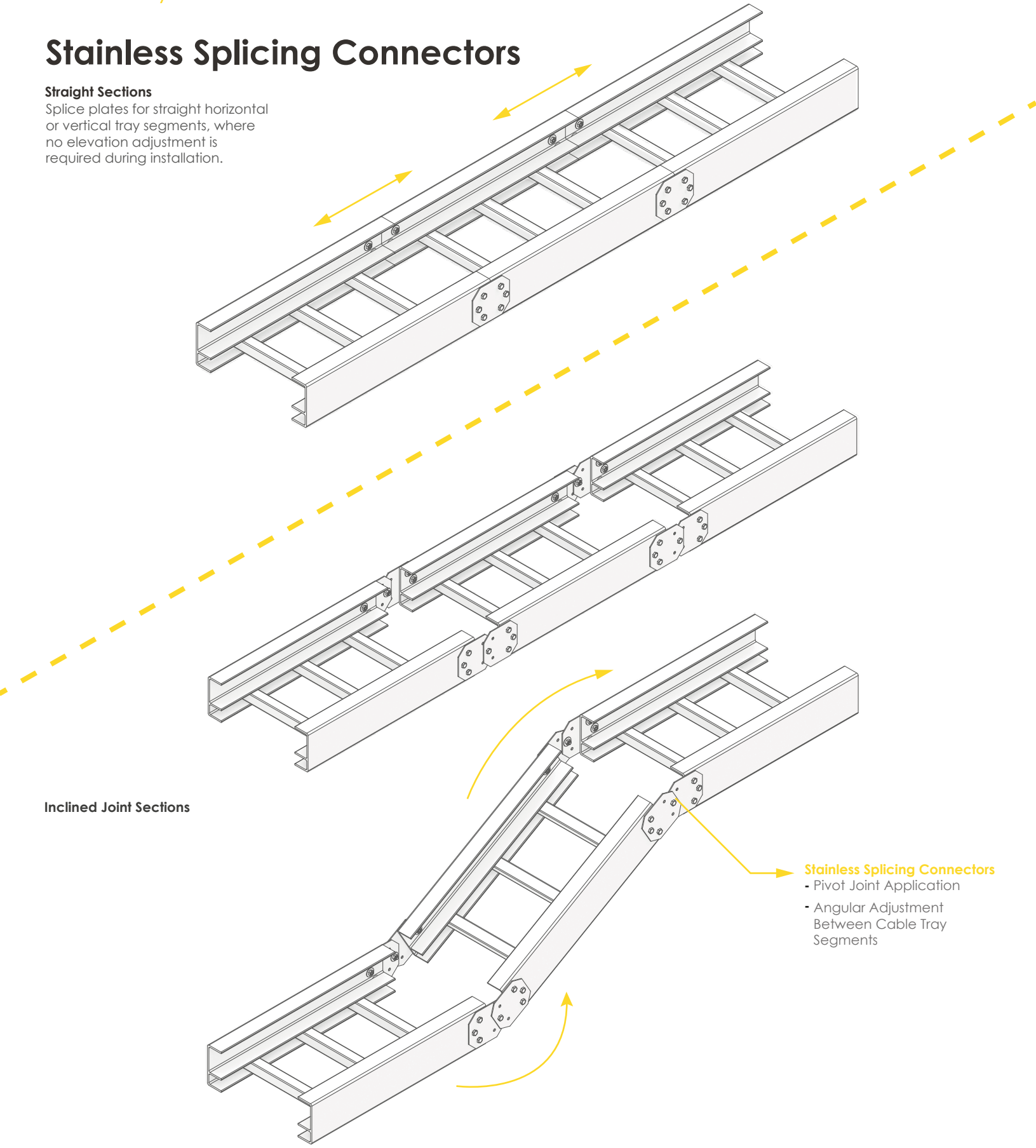


Tray Connections

Cable tray

Stainless Splicing Connectors

Straight Sections
Splice plates for straight horizontal or vertical tray segments, where no elevation adjustment is required during installation.



Inclined Joint Sections

Stainless Splicing Connectors
- Pivot Joint Application
- Angular Adjustment Between Cable Tray Segments

Cable Tray Covers

Cable tray

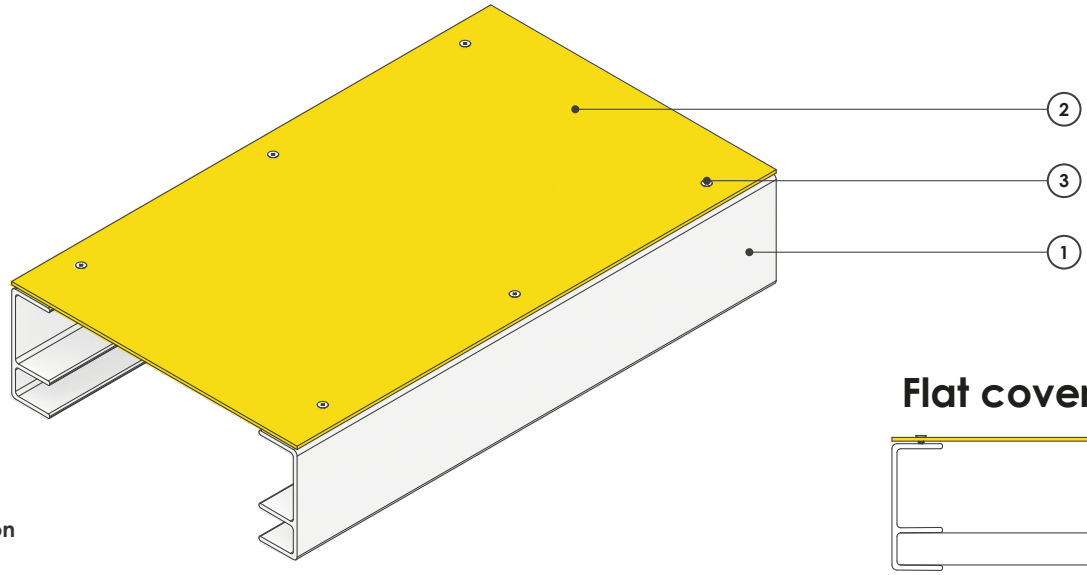
Cable Tray Covers

Cable tray

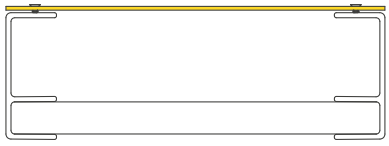
Covers or lids for HORN® cable trays are protective systems designed to cover and/or shield different tray sections from potential damage or unauthorized access.

They are available in flat or dual-pitch configurations, depending on customer requirements. These covers are designed to match the width of HORN trays and to fit geometries of tray profiles type C or type E.

They are available for all cable ladder widths and FOE accessories. For straight cable ladder sections, the covers are supplied in 3-meter lengths composed of 4 interlocking segments. This design helps minimize potential sagging across the width of the cover. The same bolts used to join the segments are also used to secure the HD clamp. Covers for accessories are supplied as a single flat piece.



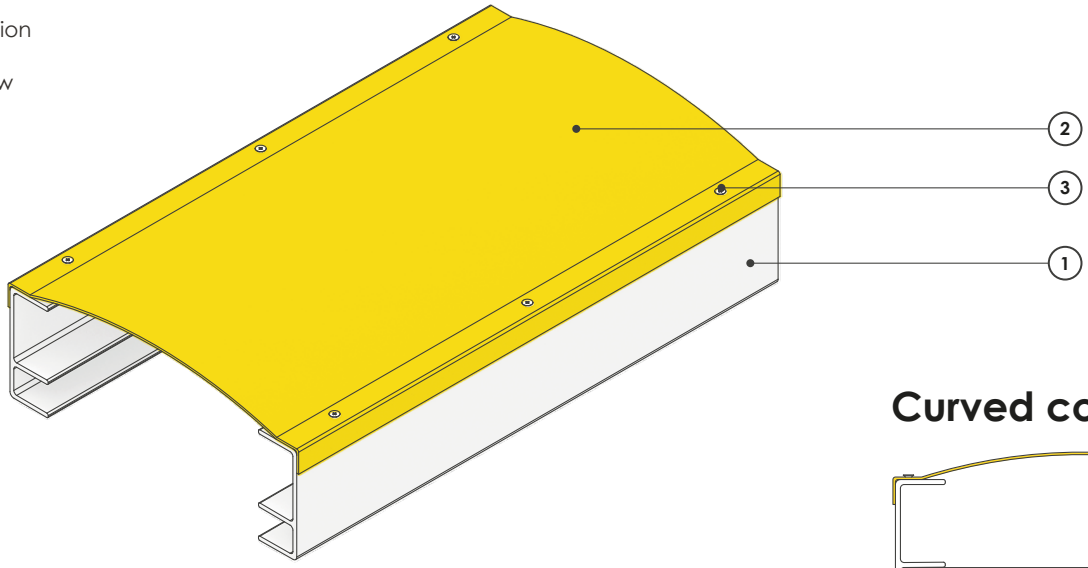
Flat cover



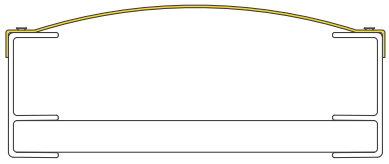
Front View

Cover Specification
Material: FRP
Thickness: 3mm

Conventions
1. Cable Tray Section
2. FRP Cover
3. Self-drilling Screw



Curved cover



Front View

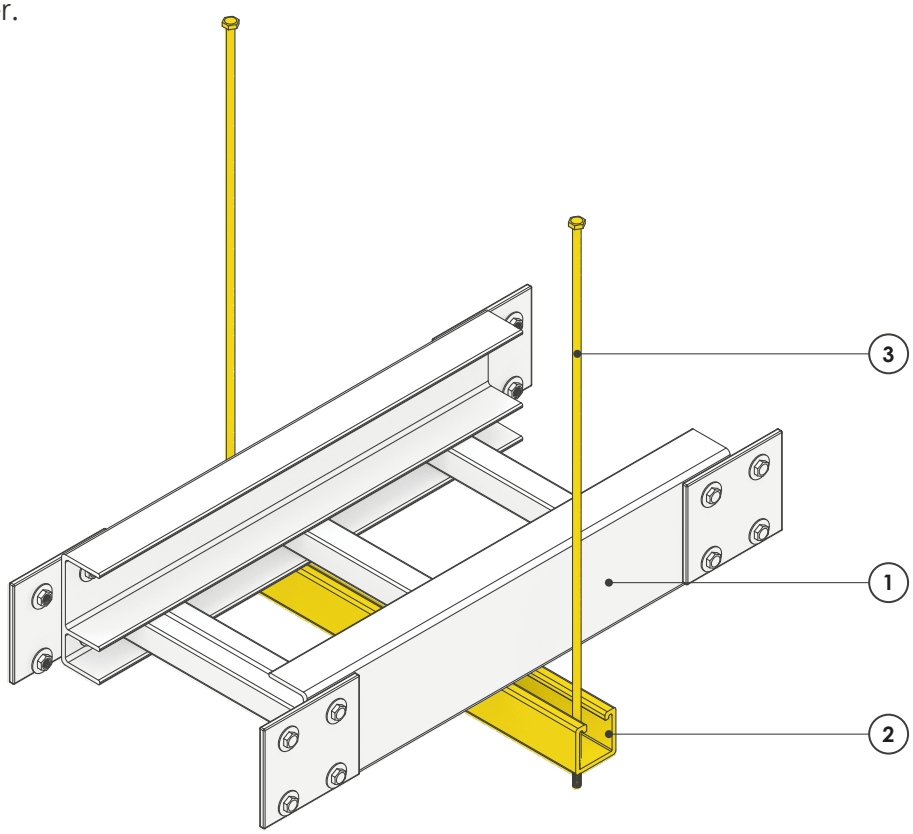
Cable Tray Installation

Cable tray

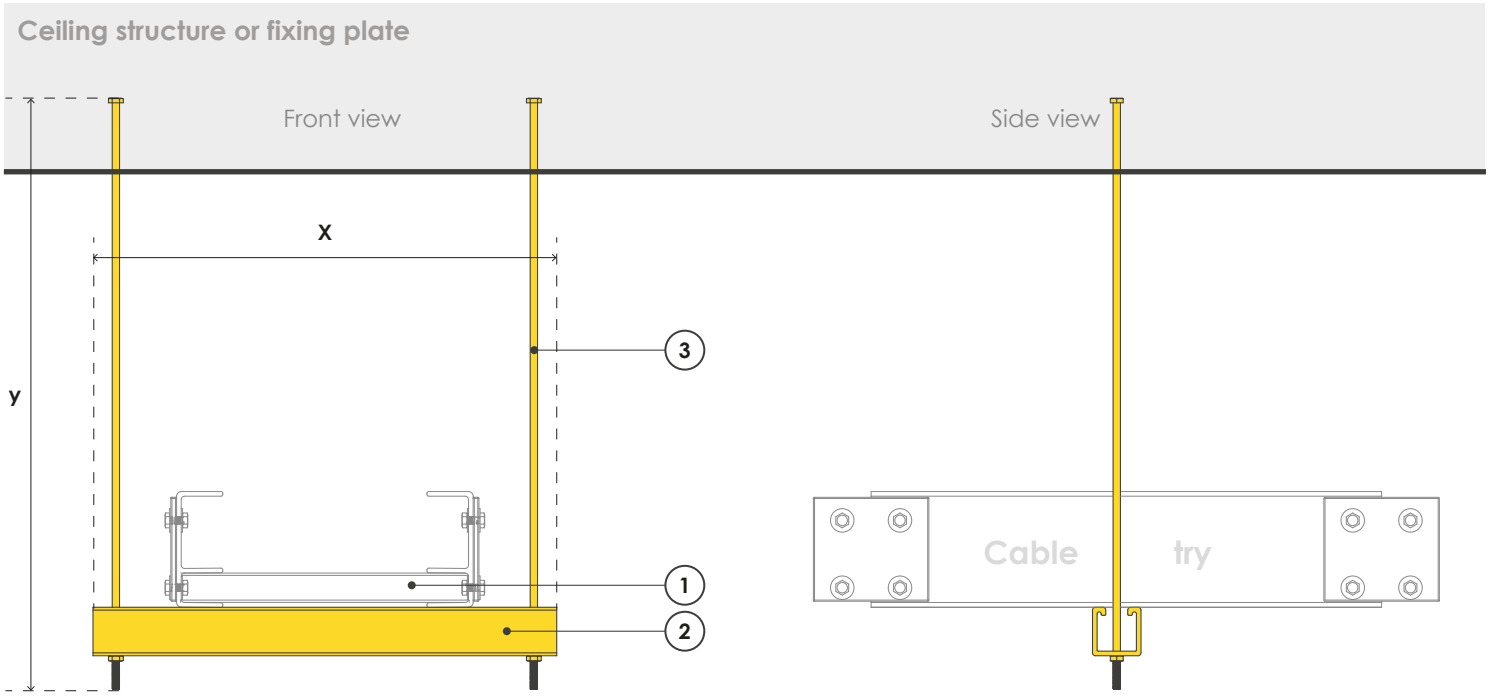
Cable Tray Installation

Cable tray

Suspended installation is ideal for environments where cable tray systems need to be fixed from the ceiling or intermediate floor slabs, in order to maintain cable routing continuity at height in a simple and easily accessible manner.



Conventions
1. Cable Tray Section
2. FRP C Support Profile
3. 1/4" Threaded Rod (in)

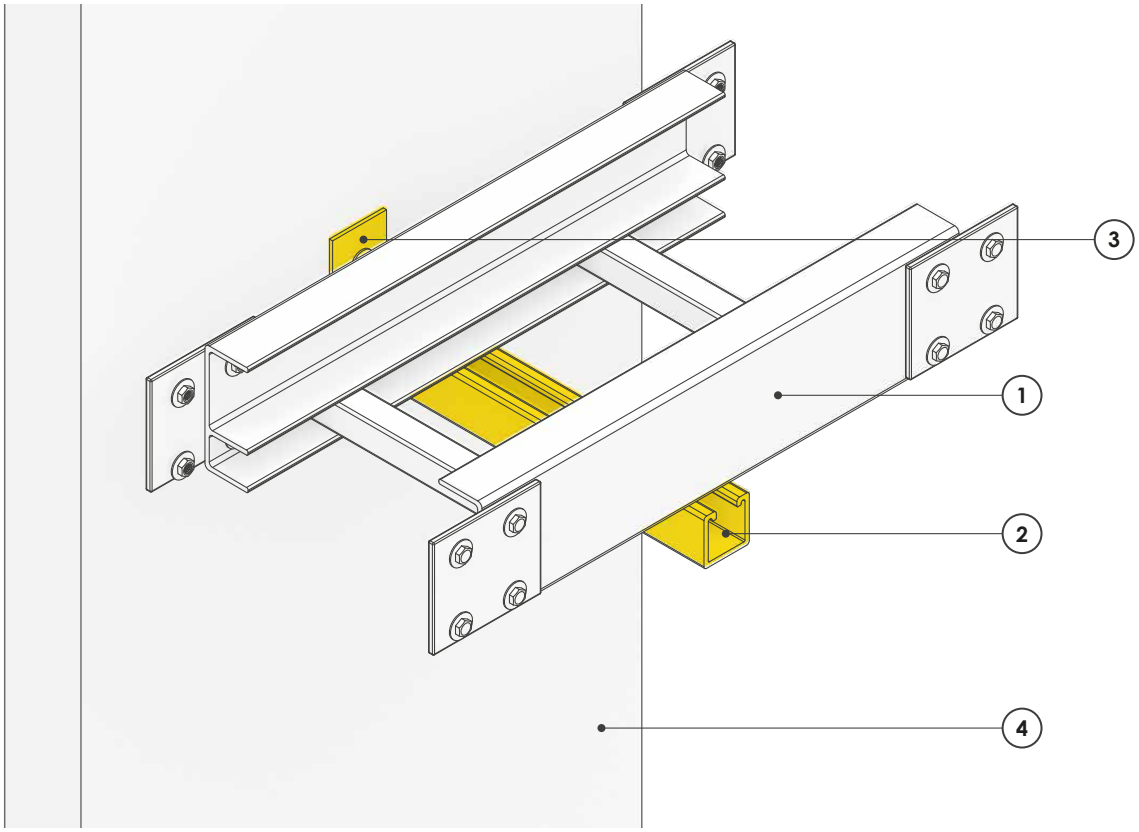


Note:
Dimensions X and Y are variable depending on the design requirements of the cable routing system and are subject to structural calculation.

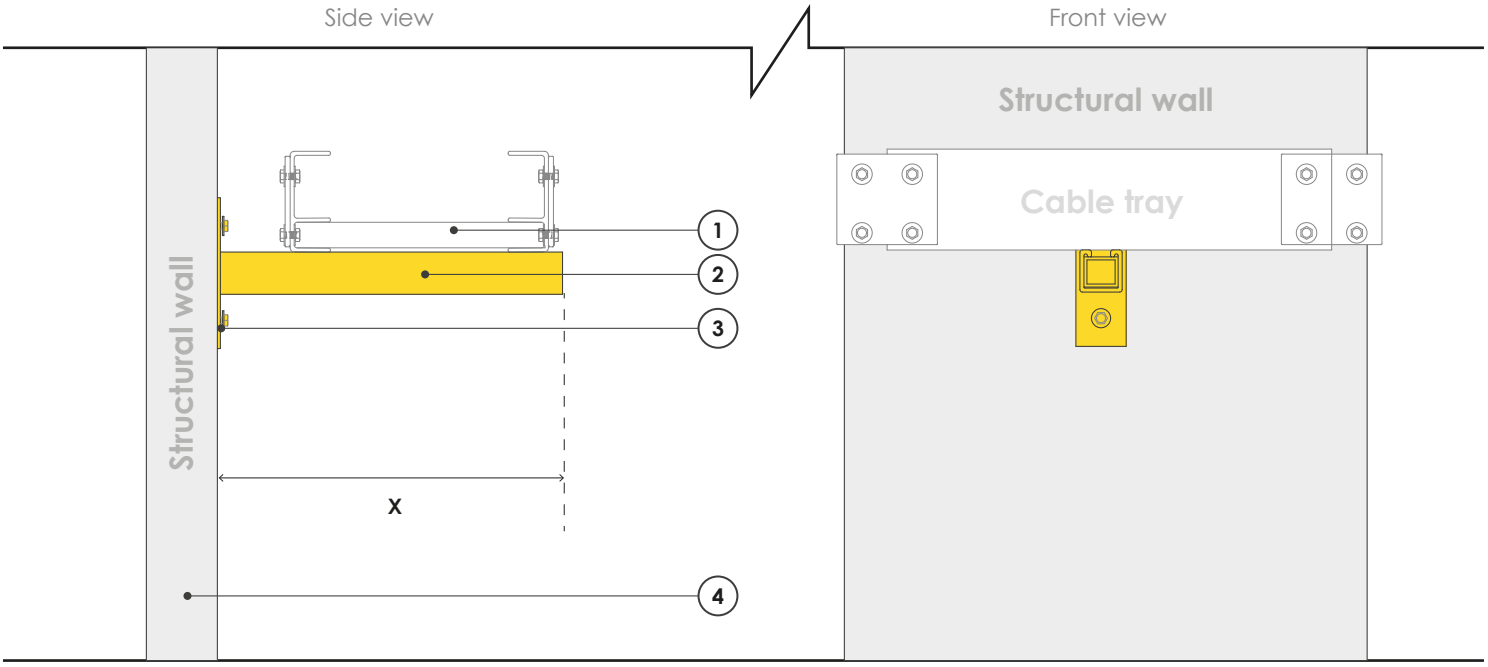
Single-Bracket Installation

Cable tray

Installation using simple brackets is an easy-to-implement solution for outdoor areas or locations where site conditions hinder direct installation from the ceiling. This configuration is specifically designed to support standard structural loads in the electrical and cabling sectors.



Conventions
1. Cable Tray Section
2. FRP C Support Profile
3. 1/4" Threaded Rod (in)

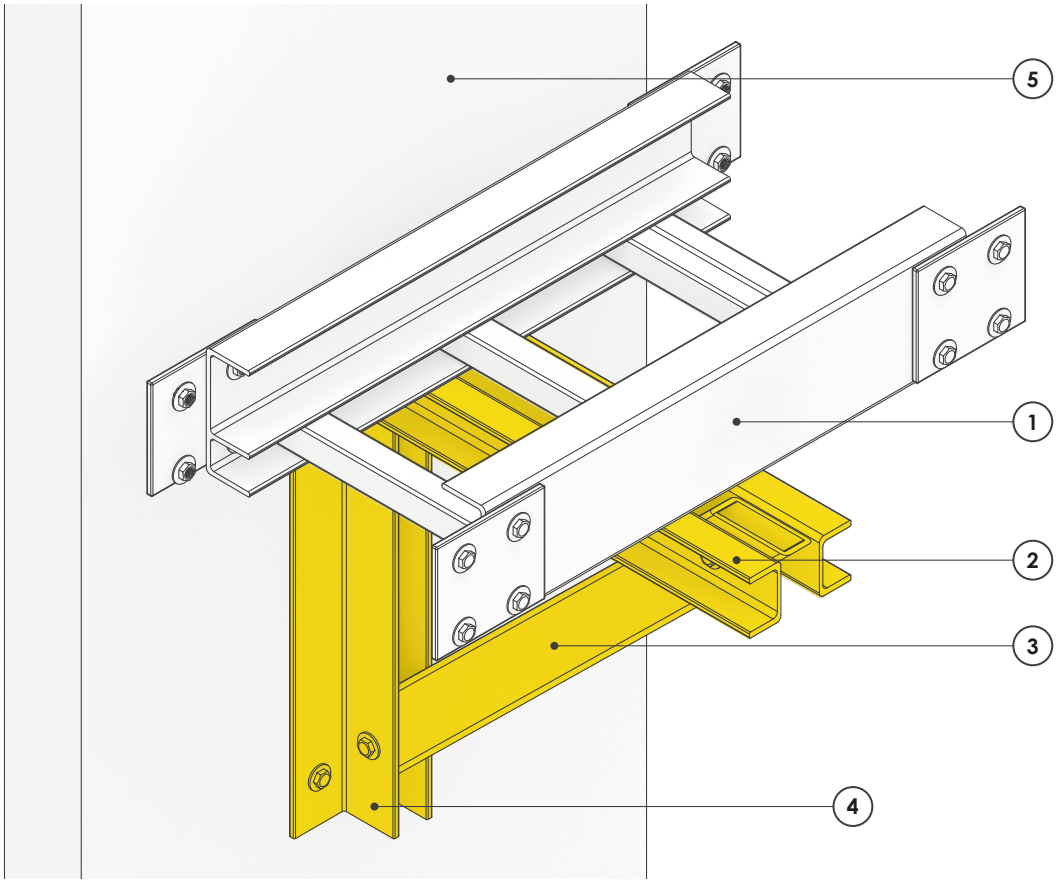


Note:
Dimensions X and Y are variable depending on the design requirements of the cable routing system and are subject to structural calculation.

Heavy-Duty Bracket Installation

Cable tray

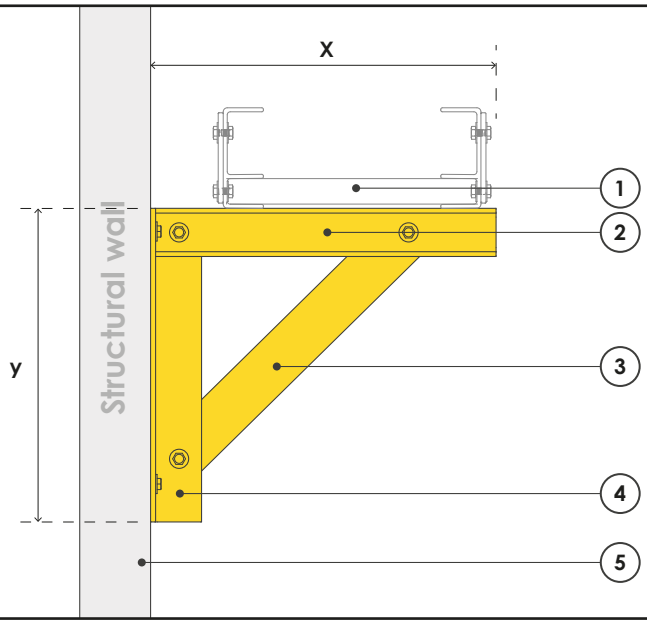
Installation using heavy-duty brackets is a practical solution for outdoor environments or locations where site conditions hinder direct ceiling mounting. This configuration is specifically designed to support higher structural loads within the cable routing system.



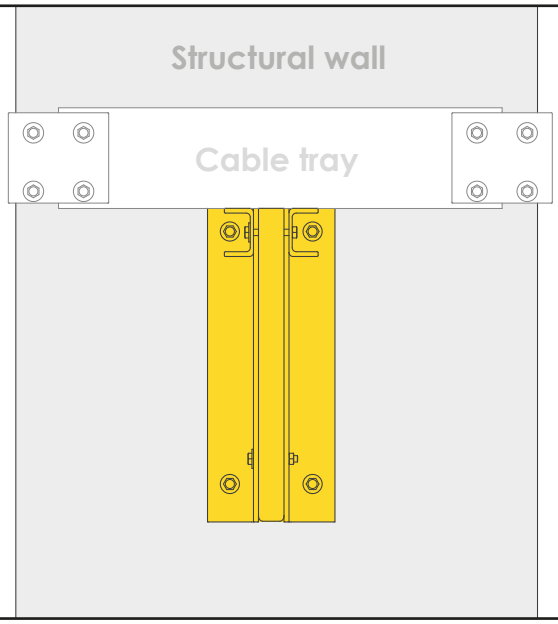
Conventions

1. Cable Tray Section
2. C Support Profile
3. Diagonal 2x1 FRP Rectangular Profile
4. 2" FRP Angle for Wall Mounting
5. Mounting Wall

Side view



Front view



Note:
Dimensions X and Y are variable depending on the design requirements of the cable routing system and are subject to structural calculation.

System Installation

Cable tray

The installation of HORN® Cable Trays must comply with the standards established by the European Standard EN 61537 and the National Electrical Manufacturers Association (NEMA). Their installation is similar to that of conventional metal cable tray systems, as flat, upward, downward bends, crosses, tees, and reducers are provided.

System Calculation

For the structural design of Cable Tray Systems, the behavior of the entire set of sections is calculated as a continuous beam with multiple supports (see diagram 1), considering the spans between joints and the loads to which the system will be subjected. Based on this, load capacity and deflection criteria are determined, which will influence the design.

Installation Recommendations

1. For field installation and assembly, it is recommended to work in well-ventilated areas to avoid dust accumulation, which may occur during cutting or sanding operations on the product.

2. Use essential personal protective equipment (PPE) such as safety goggles, gloves, dust mask, and coveralls. Failure to meet these basic safety conditions may result in serious health issues such as skin irritation caused by direct contact with the fiberglass material.

3. Avoid excessive pressure during cutting or drilling processes to maintain the material's integrity.

4. Avoid generating excessive heat during any operation on the tray profiles, as high temperatures can soften the bonding resin in the fiberglass.

5. Install the entire Cable Tray System before laying any type of wiring.

6. Use splice systems (splice plates) at every point where it is necessary to join straight tray sections or any of the connection types previously described.

7. It is recommended not to place the highest cable system loads at the joints between tray sections, as these points are structurally weaker.

8. During tray installation, avoid placing support points at the joints between sections. Locate the supports at a distance of L/4 from the tray joint, following the manufacturer's recommendations for the design of the cable routing system (diagram 2). Failure to do so may result in deflections along the tray sections.

9. If significant variations arise in the cable tray system design or structural definition during installation, consult the manufacturer.

Figure 1
Continuous Beam with Multiple Supports

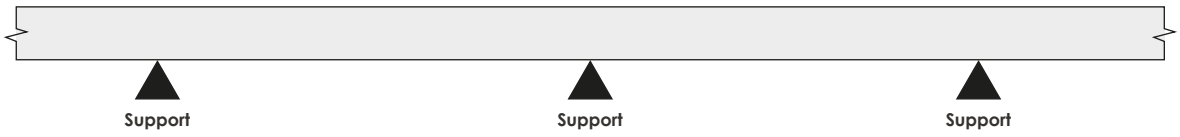
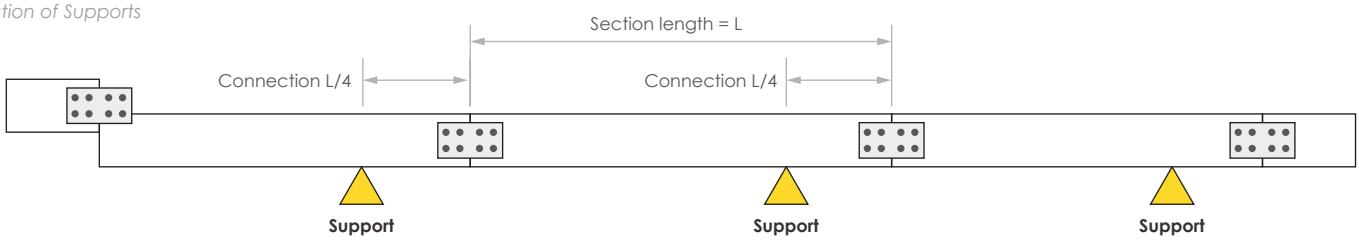


Figure 2
Installation of Supports



System Installation

Cable tray

Select the cable tray width required by considering the following aspects:

1.Number of cables to be installed in the tray.

2.Outer diameter of the type of cable to be installed.

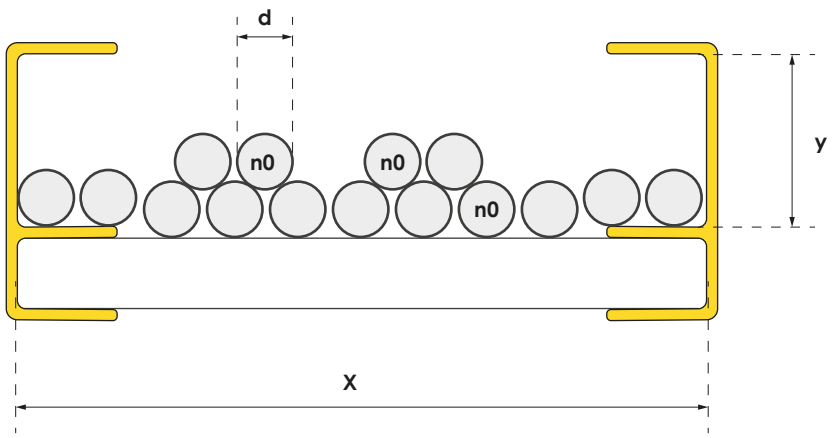
3.Ensure that the total diameter sum of the planned cabling does not exceed the usable internal area of the tray, according to its typology and classification by size and structural load.

4.Consider the weight per area of the type of cabling to be installed.

The following table illustrates the considerations for determining the usable tray space required to accommodate the specified cabling:

Cable Gauge	Outer Diameter (d)	Number of Cables (n)	Required Space (multiply d × n = sum of cable diameters)
3/C - #500 kcmil	5.388 cm	1	5.388 cm
3/C - #250 kcmil	4.124 cm	2	8.248 cm
3/C - #4/0 AWG	3.702 cm	4	14.808 cm

Figure 3
Cable Layout for Tray Selection



Conventions
d = External cable diameter
n0 = Number of cables to install
X = Usable tray width
Y = Usable tray height

Applications

Our cable trays are ideal for use in demanding environments where factors such as humidity and chemical agents can affect structures. Their high resistance to corrosion and chemicals, combined with low thermal and electrical conductivity, make them perfect for this type of application.

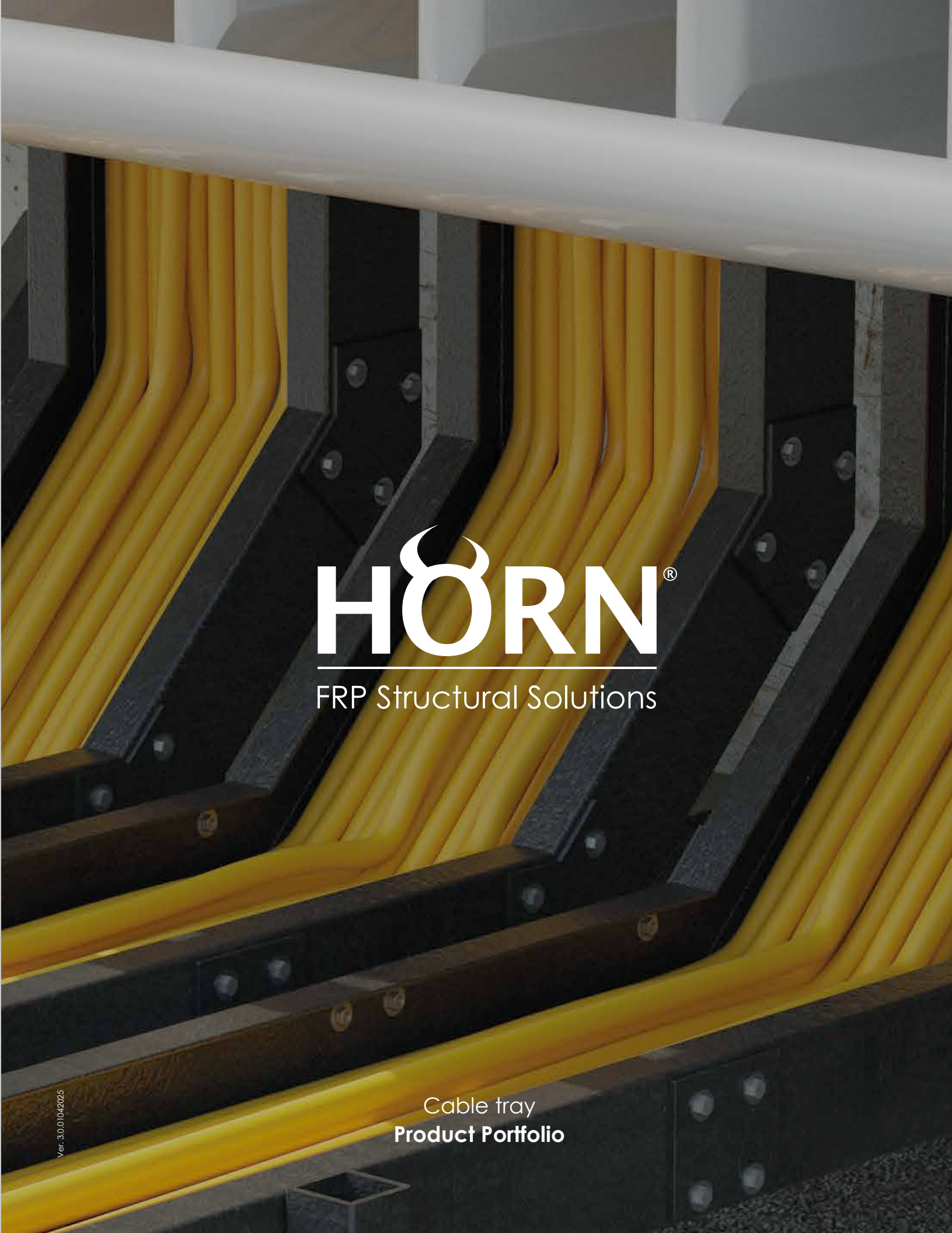
For the Mining Sector

For the WWTP / DWTP sector

For the tank and maintenance sector

For the electrical sector

For the naval sector



HÖRN®

FRP Structural Solutions

Cable tray

Product Portfolio

Ver. 3.0.01042025