HORN

Catalog

for the electrical industry

The electrical sector's safest FRP solutions

2025

Crossarms | Poles | Scaffoldings | FRP enclosures | FRP Structures

Web site

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

We are CAVAR

We are CAVAR SA, a business group with over 40 years of experience, passionate about work, innovation, and creating systematic value for the industry and society. Through our brands, we focus on quality at every step and excellence in our products, constantly evolving.

Our brands

CAVAR

lusen

HORN

proAscenso

proDeck

CAVAR Telecomunicaciones

Certified by

ISO 9001:2015 Quality Management System Certification

FRP Ladder Certification ANSI ASC A14.5-2017

Sello de Buenas Prácticas de Innovación

UL-568 Cable Tray Certification

ANSI A10.8-2019 Dielectric Scaffold Certification

Benefits of FRP products

Corrosion Resistance

High Strength

Thermal Insulation

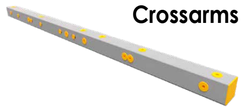
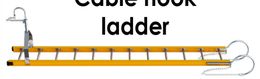
High environmental resistance

Flame-retardant

Lightweight

Cost-Effectiveness

Electrical Insulation

PRODUCT	Product reference standard	ASTM D149 (Dielectric strength)	ASTM D570 (Water absorption)	ASTM D790 (Flexural strength)	ASTM G154 (Accelerated aging)	ASTM D5025 (Combustibility)	ASTM E84 (Flame spread)	ASTMD 543 (Chemical resistance)	NTC 5283 (Flammability)	ASTM D648 (Thermal deformation)	ASCE 104 (Bolt torsion and tightening torque)	ASTM D4923 (Bending under load and torsion)
Crossarms 	NTC 6183 (ET403 ENEL)	X	X	X	X	X	X	X	_	_	_	_
Cable tray 	UL568 - RETIE	X	X	X	X	X	X	X	X	X	X	X
Modular scaffolding 	ANSI+ASSP+A10.8-2019 - NTC 1641 - NTC 1642	X	X	X	X	X	_	X	_	_	_	_
Cable hook ladder 	ANSI ASC A14.5	X	X	X	X	X	_	X	_	_	_	_
Portable fiberglass ladders 	ANSI ASC A14.5	X	X	X	X	X	_	X	_	_	_	_
Pole ladder 	ANSI ASC A14.5	X	X	X	X	X	_	X	_	_	_	_
Poles 	ANSI C136.20-2008- RETILAP D 883 - RETIE	X	X	X	X	X	_	X	_	_	X	X
Customized FRP structures 	NSR10 - Manuals Fiberline - Creative Pultrusion - EUROCOMP	X	X	X	X	X	optional	X	_	_	_	_

Products

We develop, produce, and promote products and tools made from fiberglass reinforced plastic (FRP), which are highly suitable for hostile environments, exposure to chemicals, corrosive agents, and settings with electrical hazards.

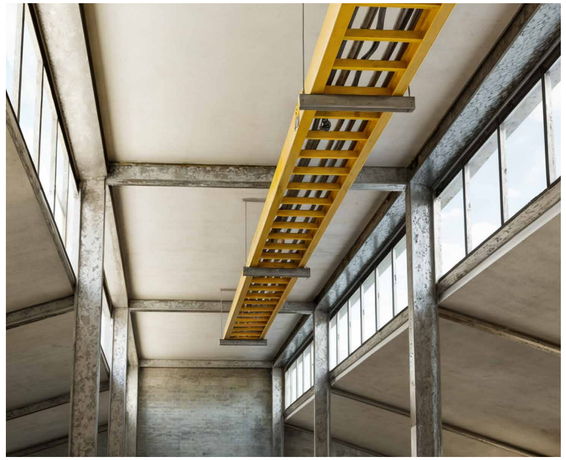
Crossarms

Poles

FRP enclosures

Customized FRP structures

Roof walkways



Cable tray

Modular scaffolding

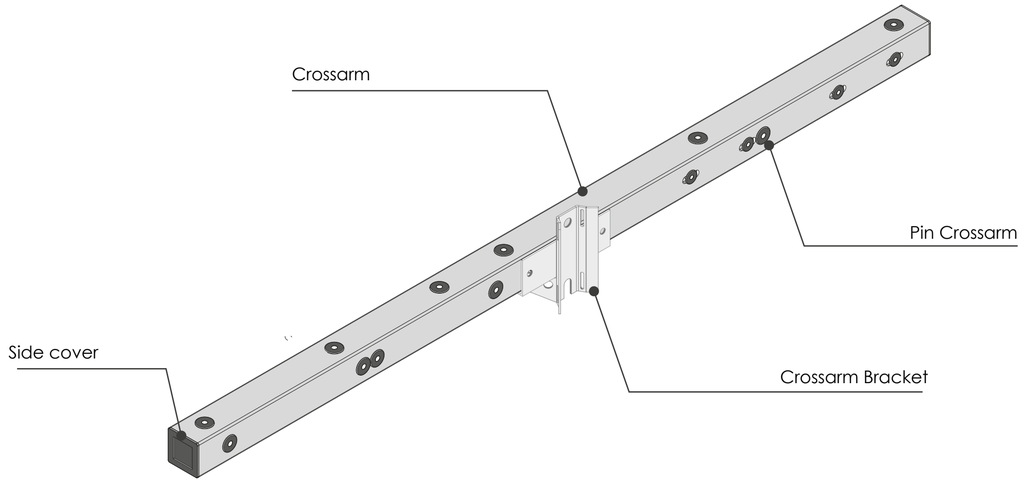
Portable fiberglass ladders

certecnica
Más que certificaciones técnicas
PRODUCTO CERTIFICADO

Certificado No. 2014
RETIE 2013 / NTC 6183:2016
Acreditación ONAC 21-CPR-002
ISO/IEC 17065:2012

FRP Crossarms

FRP crossarms to manage transmission and distribution systems, designed for strength and resilience, these components are essential in supporting overhead electrical lines while providing a lightweight and durable alternative . Crossarms are engineered to withstand harsh environmental conditions, including extreme temperatures, humidity, and corrosive elements; offers excellent resistance to degradation, ensuring a longer lifespan. This durability translates into reduced maintenance costs and fewer replacements over time, making FRP crossarms a cost-effective solution for utility companies.



Geometries

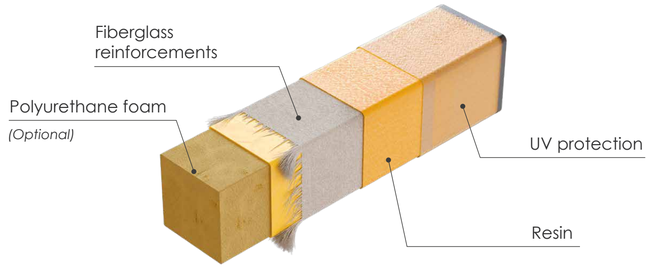
Square

4"

Rectangula

4" x 2"

Profile structure

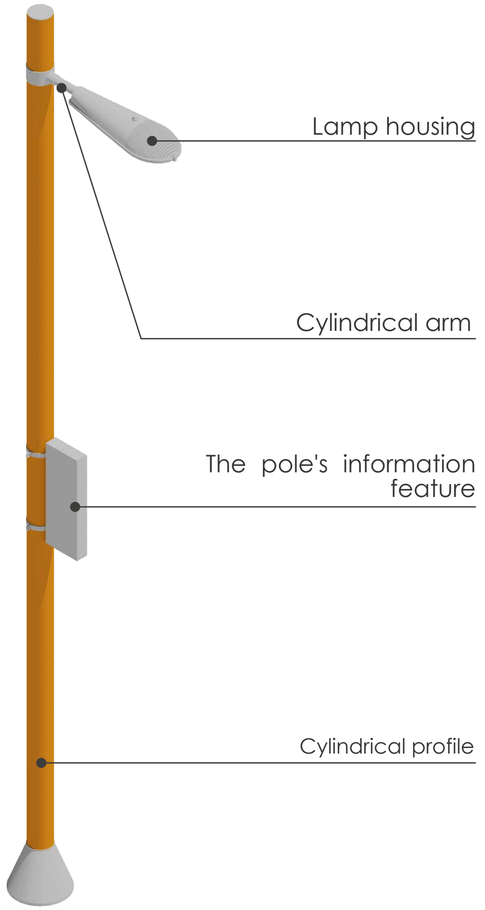


certecnica
Más que certificaciones técnicas
PRODUCTO CERTIFICADO

Certificado No. 2015
RETILAP 2016 / ANSI C136.20:2012
Acreditación ONAC 21-CPR-002
ISO/IEC 17065:2012

Poles

Ornamental and light poles made from fiberglass reinforced plastic (FRP) combine visual attractiveness with outstanding durability. Suitable for various uses, these poles beautify urban environments, parks, and commercial areas with their stylish designs while delivering dependable lighting solutions. FRP poles are resistant to degradation from harsh environmental factors, making them an excellent option for outdoor use. This durability minimizes maintenance expenses and guarantees that the poles stay both aesthetically pleasing and functional for years.



Conical pole


2”

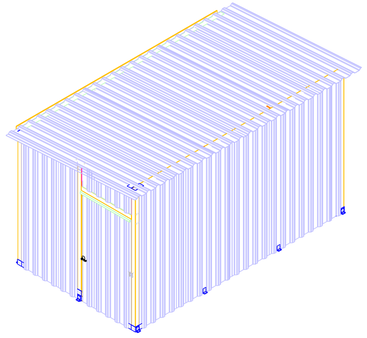

4”


6”

FRP enclosures

HORN® FRP enclosures are engineered for spaces where safety and efficiency are paramount. The composite material delivers a range of advantages that optimize product performance and area protection, including zero electrical conductivity, lightweight construction, resistance to harsh environments with minimal maintenance costs, plus outstanding versatility and customization.

Design and measurement

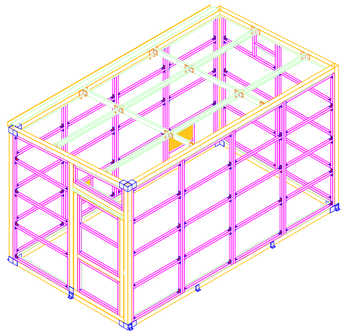


All our products are custom-made, taking into account the specific needs of the client and the characteristics of the space where they will be used.

visualization

Through photorealistic images, we provide a more accurate visualization of projects and products before their realization.

Structural analysis



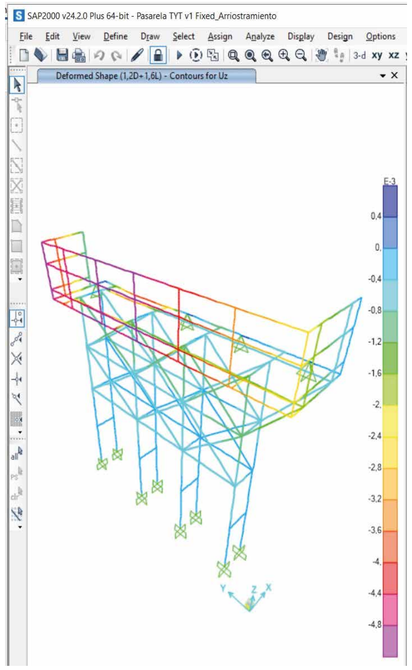
We use specialized software to create calculation reports and validate the performance of each structure, ensuring strength and stability

Customized FRP structures

Fiber Reinforced Polymer (FRP) structures that are customized to meet specific project requirements offer unparalleled versatility and performance. With the ability to design elements that meet unique dimensions, load requirements, and environmental challenges, these structures provide solutions that traditional materials often cannot. Their lightweight nature facilitates easier transportation and installation, while their inherent corrosion resistance ensures durability in harsh conditions.

Conceptualizing and designing

Custom designs will be tailored to the client's needs and the location where they will be installed.



Structural analysis design

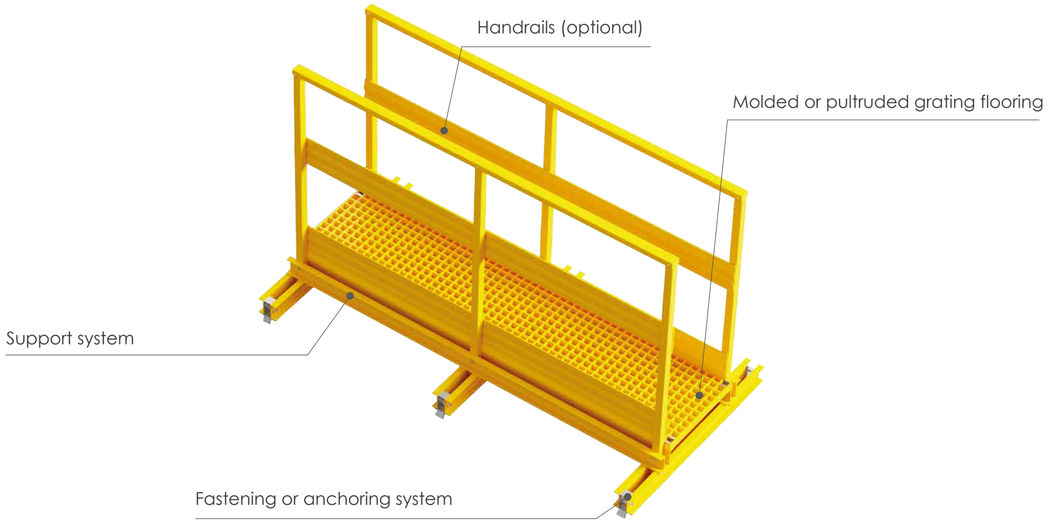
Analysis of the structures that ensures their safety and strength against the loads and stresses to which they are subjected.

Modular construction

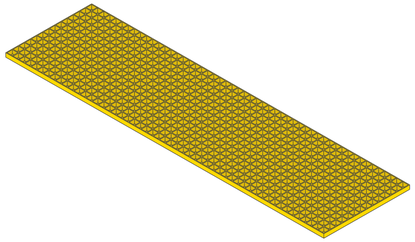
Manufacturing of structures as modular systems for easy installation and transport.

Roof walkways

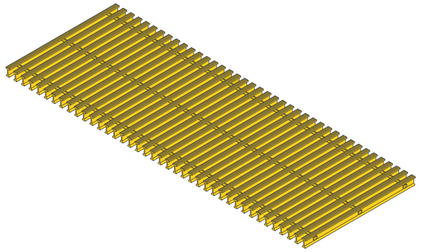
DEngineered for rooftop work, these walkways deliver secure, clearly marked access routes for inspections and maintenance while simultaneously shielding the roof from potential damage or impact.

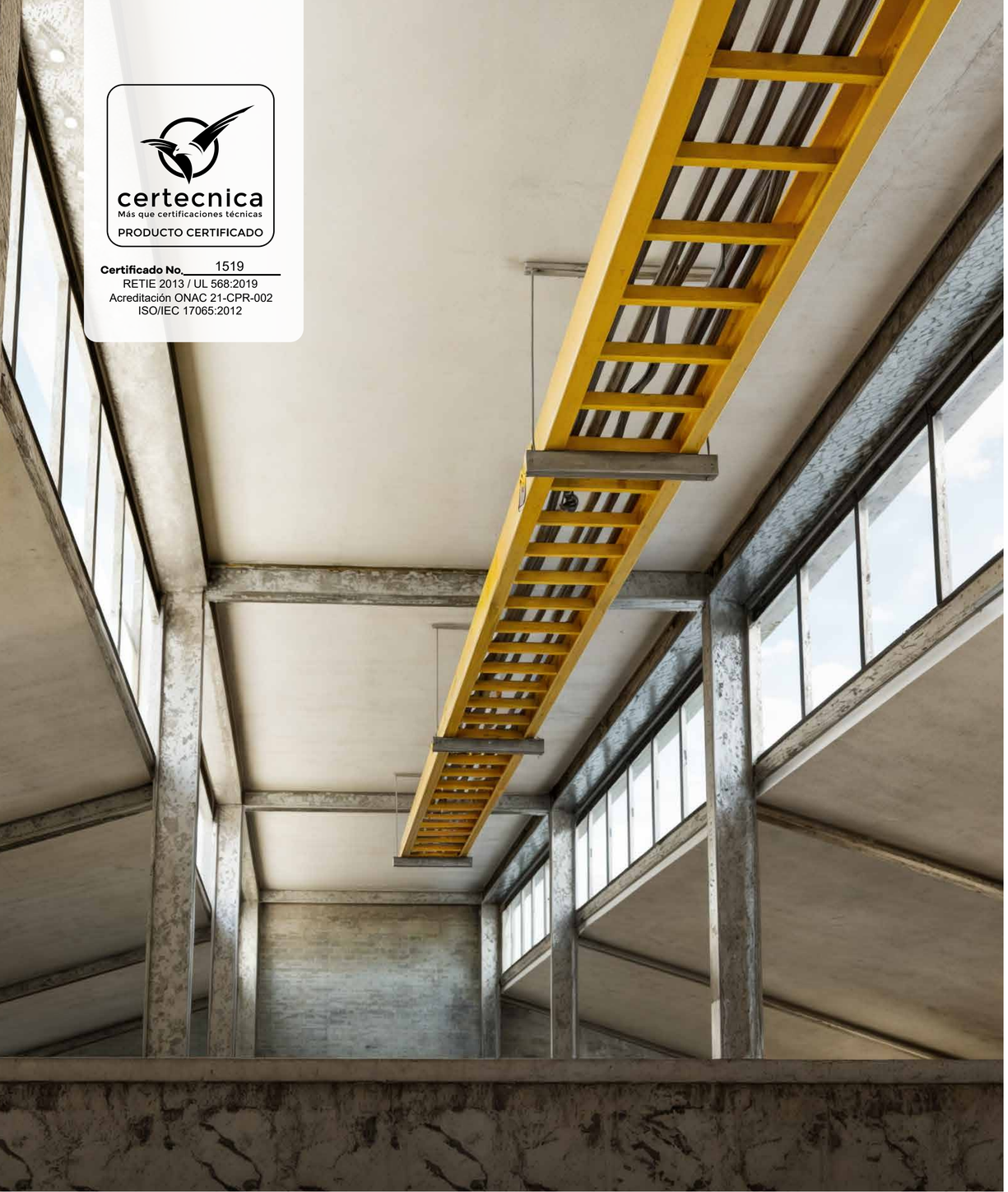


FRP Grating Molded Surface



FRP Grating Pultred Surface



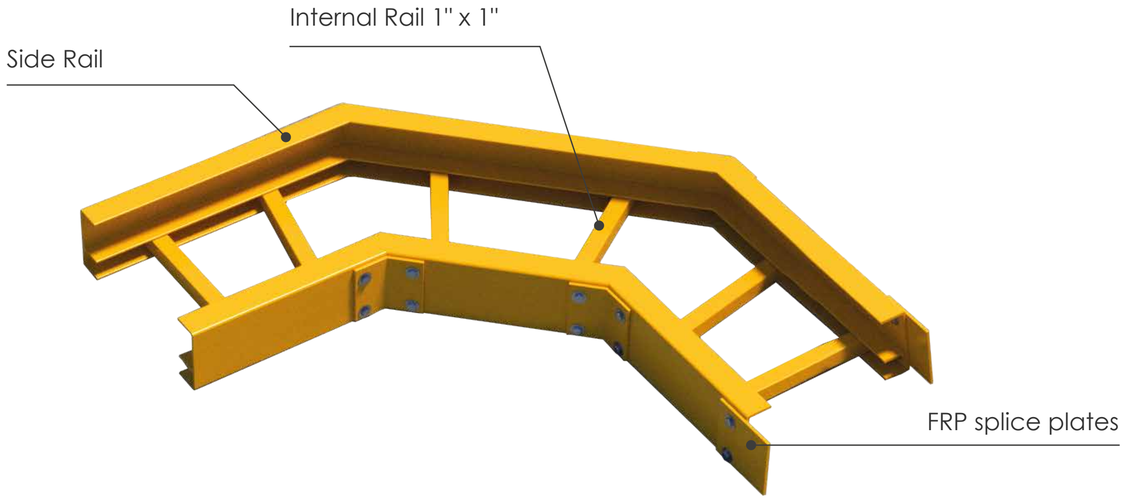


certecnica
Más que certificaciones técnicas
PRODUCTO CERTIFICADO

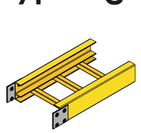
Certificado No. 1519
RETIE 2013 / UL 568:2019
Acreditación ONAC 21-CPR-002
ISO/IEC 17065:2012

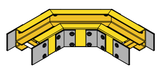
Cable tray

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.

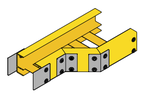


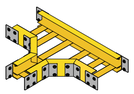
Typologies

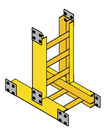

Horizontal Ladde

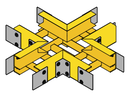

Horizontal Bend


Vertical Outside Bend


Left Hand Reducer


Horizontal Teel


Vertical Tee


Horizontal Cross

Modular scaffolding

Modular scaffolding is ideal for working at heights, where versatility is as important as safety. They are made of Fiber Reinforced Plastic (FRP), a composite material with multiple advantages: it is non-conductive, lightweight, has high mechanical strength, and is not affected by corrosion.

Load capacity
500lb
(227kg)

Working height
5m
(2 sections)

A limit of
1
People

Dielectric
system
50kv
Dielectric strength

Load capacity
500lb
(227kg)

Working height
15m
(10 sections)

A limit of
2
People

Dielectric
system
50kv
Dielectric strength

Certified by

NTC 1641:1981
NTC 1642:1981
ANSI/ASSP A10.8:2018
BUREAU VERITAS
Certification

Portable fiberglass ladders

Portable ladders made of fiberglass are designed according to the American standard ANSI A14.5, they are intended to be used in industrial and commercial environments where electrical safety is required with a light and resistant ladder that can withstand adverse environmental conditions. Dielectric product, easy to handle. Ladders from 2 steps to 54 steps.

Extension ladder

Pole ladder

Cable hook ladder

Applied tests

Dielectric

Fiberglass composite is inherently non-conductive, delivering greater safety across the work area.

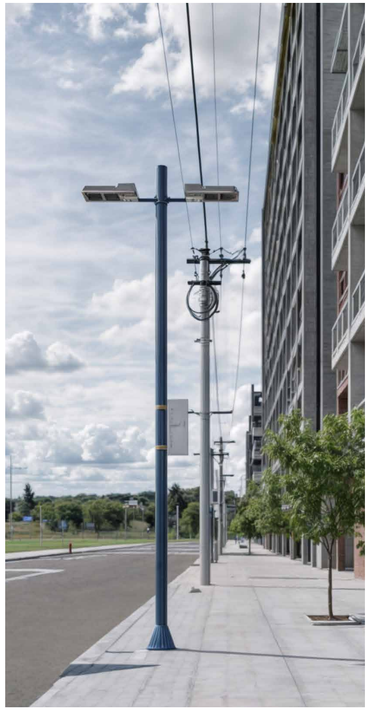
Propiedades eléctricas	
Dielectric strength	Greater than 50 kV
Leakage current	Less than 90 µA

ASTM	NOMBRE	DESCRIPCIÓN
D149 - 20	Standard test method for dielectric breakdown voltage and dielectric strength of solid electrical insulating materials at commercial power frequencies	Dielectric test method

Electromagnetic transparency

Fiberglass composite is transparent to electromagnetic waves—radio, microwave, and other frequency bands alike. All HORN®–designed and manufactured products share this property, making them widely adopted in telecommunications applications.

HORN® therefore offers dedicated product lines for the sector, including lightweight poles and masts, plus both natural and geometric camouflage systems for next-generation antennas.



Lightweight

Thanks to their composition, FRP profiles are significantly lighter than materials such as steel, delivering substantial savings in transportation and installation.

Characteristic	Value	Unit
Density	2,124	g/cm ^{3}

Density samples for profiles; tests were performed in accordance with ANSI ASC A14.5-2017, clause 7.9.1, and supplementary standard ASTM D792-2013, section 12.

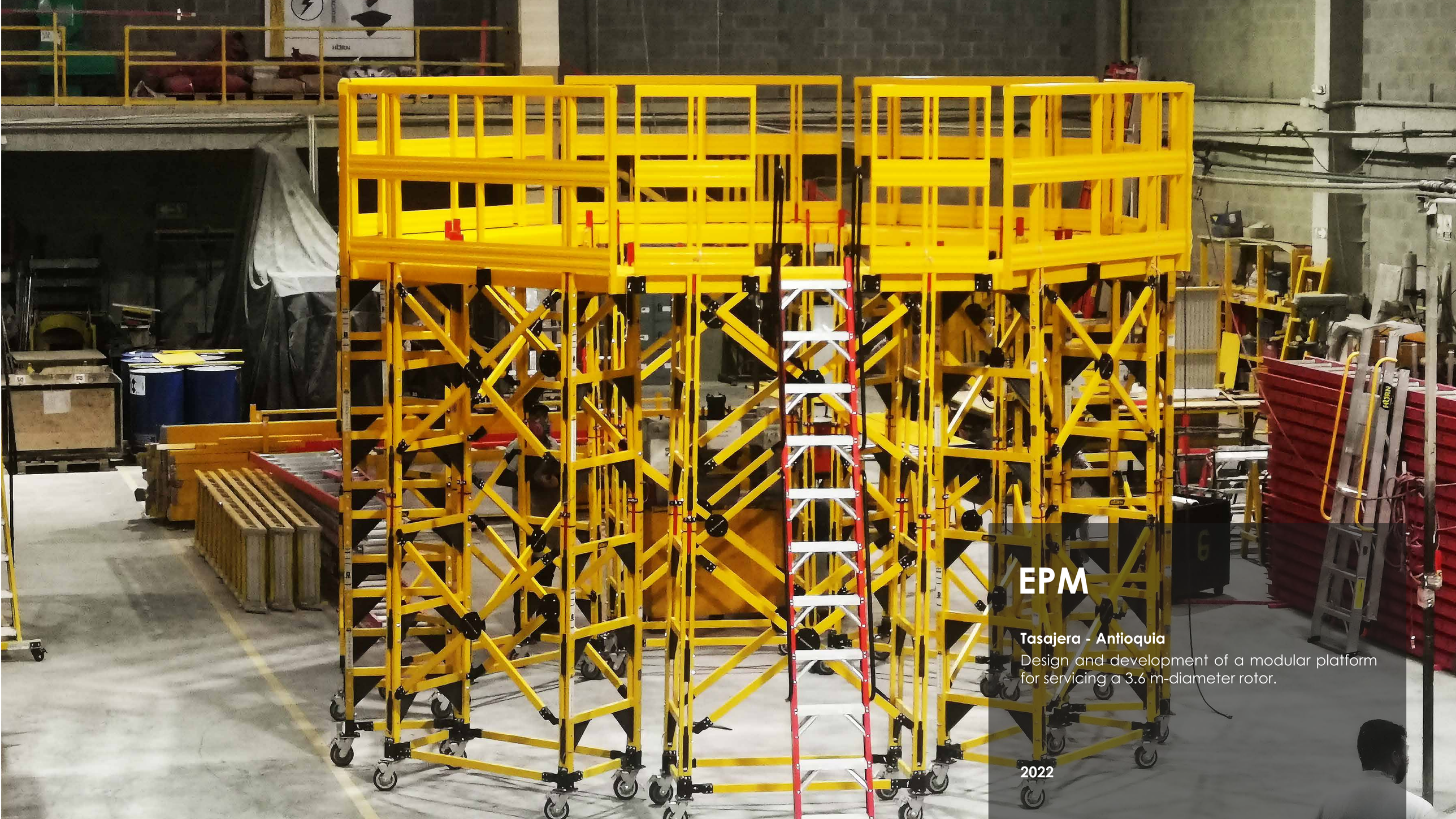
Test piece	Dry weight (g)	Wet weight (g)	Density **(q/cm3)**
10103-13-01	13,89	*7,38*	2,128
10103-13-02	13,95	*7,34*	2,105
10103-13-03	13,82	7,35	2,131
10103-13-04	13,86	7,37	2,130
Average			2,124

Mechanical strength

The profiles are manufactured with a high glass-fiber content in their structural components, delivering exceptional strength-to-weight performance and outstanding longitudinal stiffness.
Their flexural and compressive strength is twice that of a comparable steel profile.

Flexural strength (Dry)	**Maximum force (N)**	**Maximum stress (MPa)**	**Flexural modulus (GPa)**
Web lengthwise	900,5767488	523,05	17,81
Flange lengthwise	407,01604	481,62	17,30
Web crosswise	594,98262	149,93	7,55
Tensile strength (Dry)	**Maximum force (N)**	**Maximum stress (MPa)**	**Flexural modulus (GPa)**
Web lengthwise	24,056	517,23	33,02
Flange lengthwise	24,060	512,21	32,65
Compressive strength (Dry)	**Maximum force (N)**	**Maximum stress (MPa)**	**Flexural modulus (GPa)**
Web lengthwise	7,65282	168,69	8,74
Flange lengthwise	9,60017	208,58	9,53
Web crosswise	3,22614	70,45	2,60
Flexural strength (Wet)	**Maximum force (N)**	**Maximum stress (MPa)**	**Flexural modulus (GPa)**
Web lengthwise	784,56915	456,45	17,55
Tensile strength (Wet)	**Maximum force (N)**	**Maximum stress (MPa)**	**Flexural modulus (GPa)**
Web lengthwise	26,838	551,09	29,66
Compressive strength (Wet)	**Maximum force (N)**	**Maximum stress (MPa)**	**Flexural modulus (GPa)**
Web lengthwise	7,94575	7,94575	167,36

Our experience



EPM

Tasajera - Antioquia

Design and development of a modular platform for servicing a 3.6 m-diameter rotor.

2022

LUZ DEL SUR

San Bartolo - Perú

Design, fabrication, and installation of a shelter-type enclosure for 22.9 kV switchgear cells within Luz del Sur's San Bartolo substation.

2023

PUERTO BRAVO

Ilo - Perú

Design and fabrication of multiple structural systems—walkways, caged ladders, fixed ladders, guardrail assemblies, and more—for maintenance of the thermoelectric power plant.

2022

INMEL

Bogotá - Colombia

Training on the use of interlocking ladders for pole work in an electrical substation.

2023

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Electrical industry

2025