



FLEX<sup>®</sup>

FOCUS CATALOGUE

# FRP/GRP Cable Management System



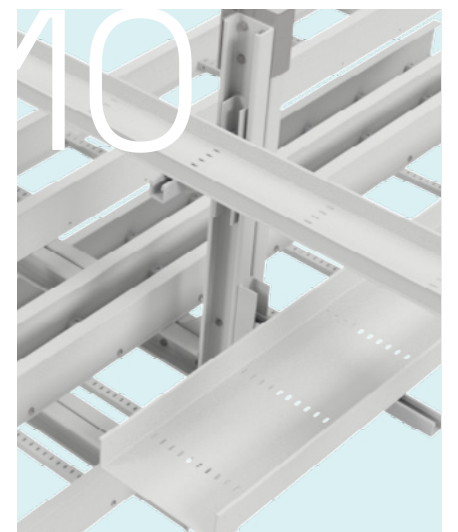
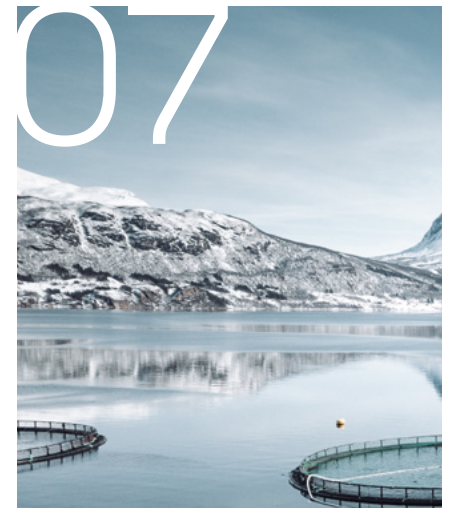
COMPOSITE  
SOLUTIONS  
FOR HARSH  
ENVIRONMENTS





## Content

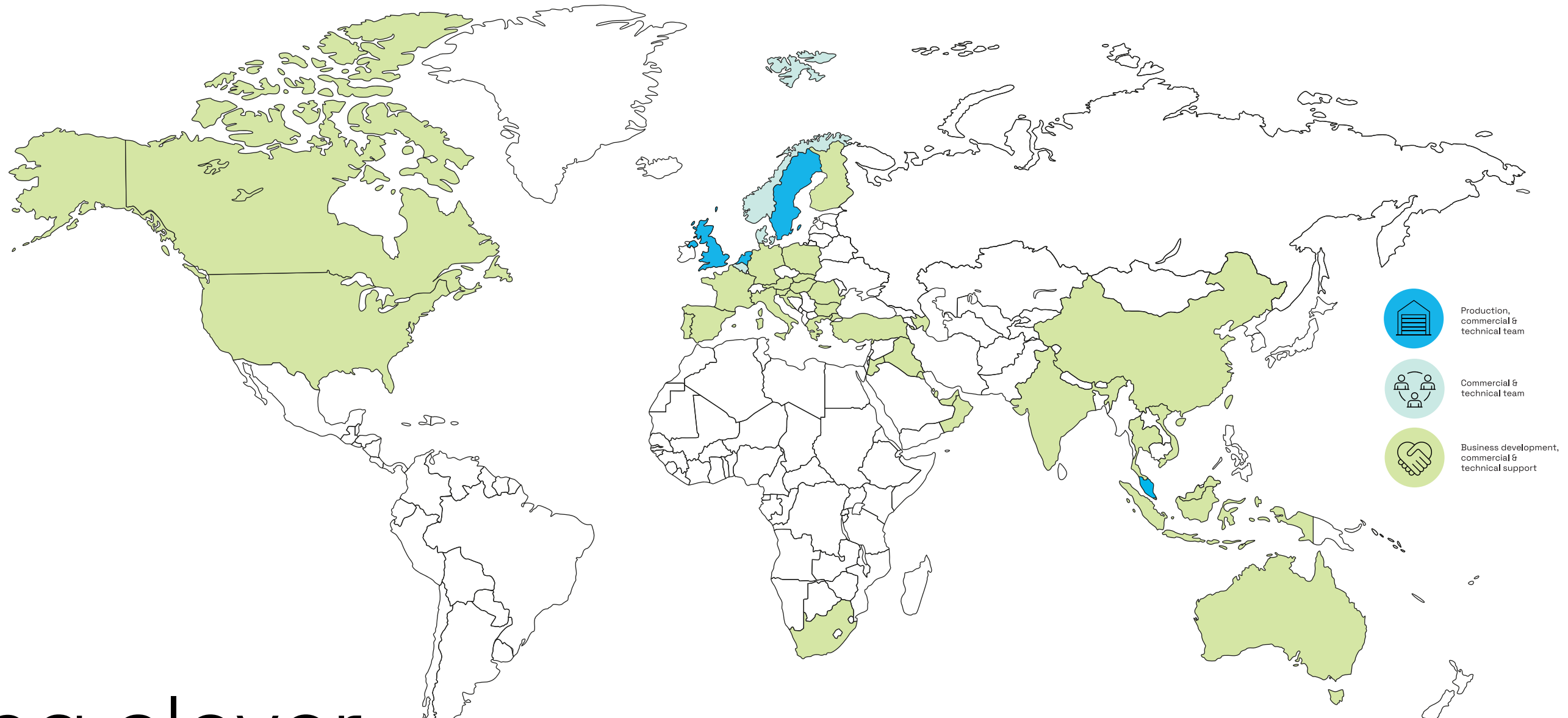
04	Wibe Group
06	Mita Flex Our FRP/GRP Cable Management Solutions for harsh corrosive environments
10	MultiFlex Support System Flexible components, offering freedom of installation
12	Cable Ladders
18	Cable Trays
24	Accessories
25	Bolt & Bolt sets
26	Technical information Safety, Material, Product Standards, Certifications & Chemical Exposure Guide



### Wibe Group presents; Mita Flex FRP/GRP Cable Management Solution

Welcome into our new catalogue presenting Mita Flex with Multi-Flex Support System – created for your bespoke configuration and freedom of installation. Discover the power of flexibility for harsh corrosive environments.





Creating clever,  
uplifting solutions,  
together with our  
clients for almost  
100 years.

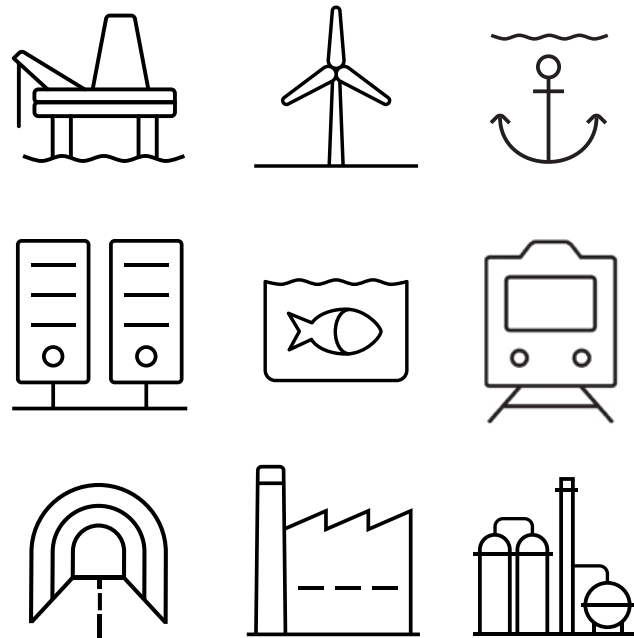
Wibe Group specializes in cable management solutions for a wide variety of applications, ranging from commercial buildings to harsh corrosive industrial environments. We provide innovative and high-quality cable ladders, cable trays and mesh trays.

With our head office in Sweden and multiple in-house locations, where we combine expertise, production and distribution, we offer cable management solutions under our brands Wibe, Stago, Defem and Mita.

By the power of combining our brands, we are now able to offer a comprehensive offer in both FRP/GRP pultruded materials, as well as metal materials in surface treatments ranging from pre-galvanized Zinkpox to hot-dipped galvanized and stainless steel.



# Mita Flex – our range of FRP/GRP cable management solutions for harsh corrosive environments



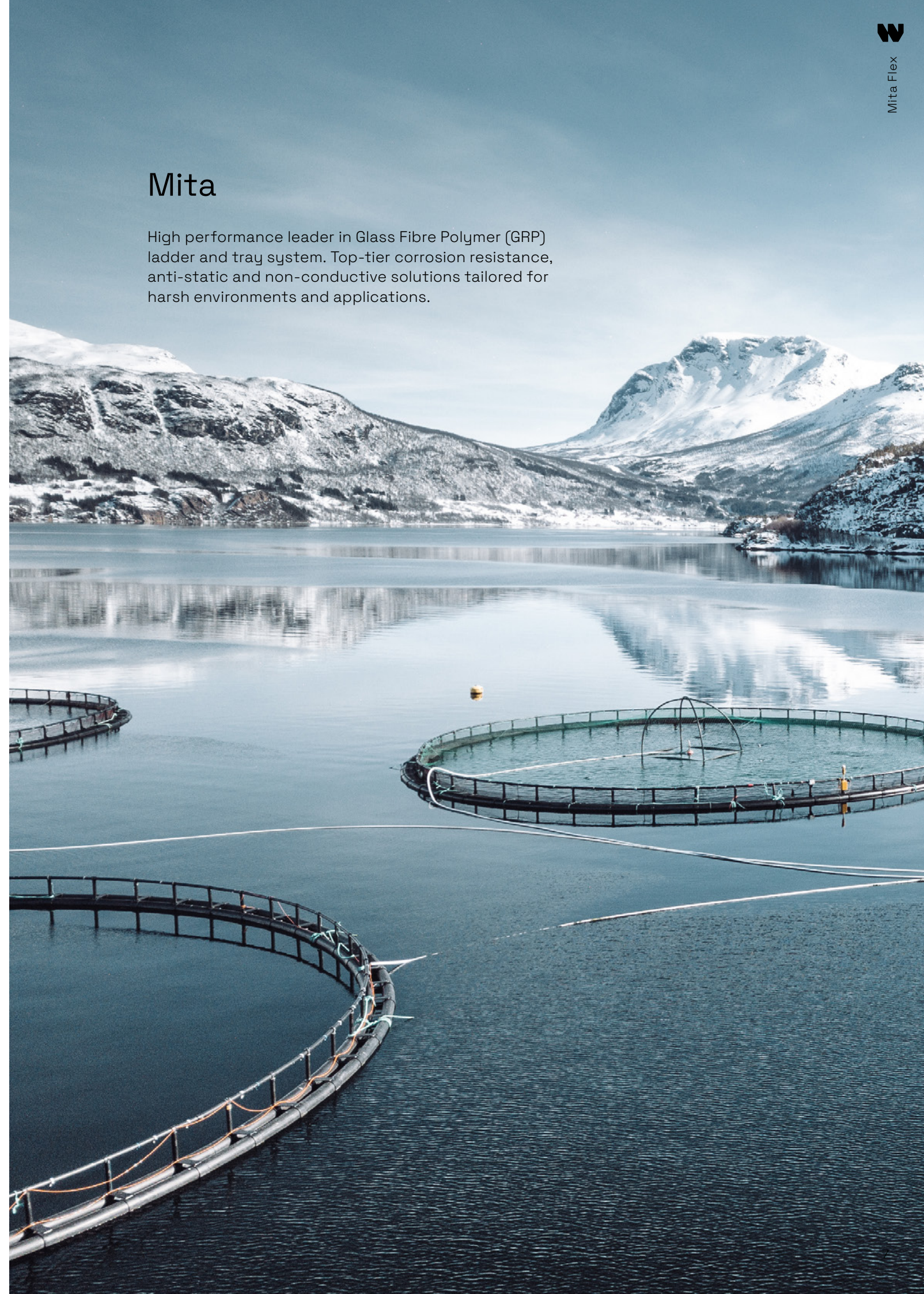
Mita Flex relates to our newest range of FRP/GRP pultruded cable management solutions, including cable ladders, cable trays, all related form pieces and accessories, as well as a new innovative and flexible support system, needed for a professional installation.

As the materials are produced in FRP/GRP, they are perfectly suited to be installed in harsh environments under harsh corrosive circumstances. Examples of such applications are:

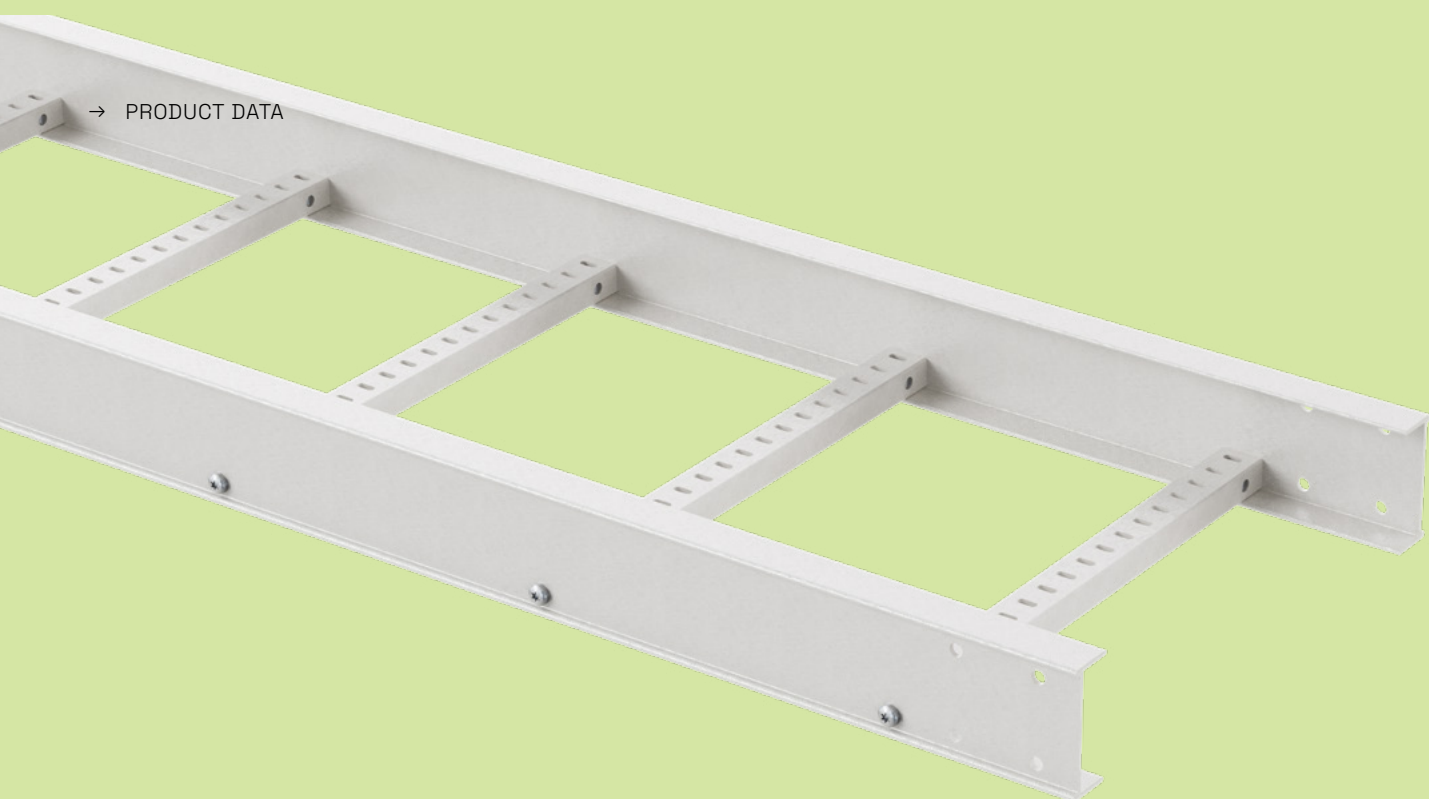
- Oil and gas
- Wind energy
- Industry, e.g. petrochemical, water treatment
- Infrastructure, e.g. tunnels
- Datacenters
- Fish farms
- Marine

## Mita

High performance leader in Glass Fibre Polymer (GRP) ladder and tray system. Top-tier corrosion resistance, anti-static and non-conductive solutions tailored for harsh environments and applications.







## What is FRP/GRP?

FRP/GRP refers to Glass fibre Reinforced Polymer, meaning it is a man-made resin based material which makes it a polymer, reinforced with glass fibre.

The polymer itself is extremely strong, and in contrary to how it may sound, it is very durable. It is resistant to most chemicals, stretching and shrinking, resistant to mildew and abrasion as well. When it is reinforced with glass, it becomes a structural polymer. Further to

these, GRP does not conduct heat. It has extra durability to adverse weather conditions and is UV-resistant which makes it an excellent candidate for outdoor applications, even for wind substations built in the middle of the sea.

### Long service life

- UV-resistant
- Corrosion resistance
- High chemical resistance
- Low maintenance

### Fire resistance

- Low thermal propagation
- Halogen free
- Self-extinguishing material
- Lower toxic fumes

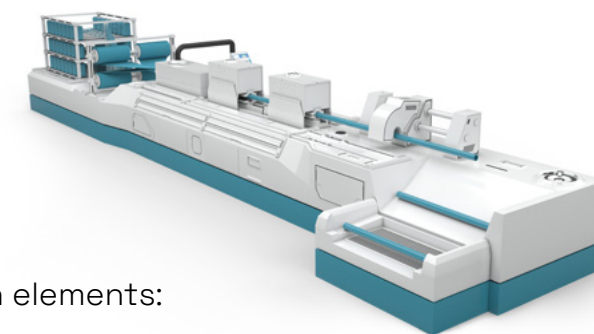
### Insulation

- Excellent electrical insulator
- No earth needed
- Excellent cable protection
- Low thermal conductivity
- High dielectric strength

### Materials

- Light, flexible and robust
- Light-weight & very strong
- None sparking
- UV resistance
- High mechanical resistance
- High temperature resistance
- Optimized design to reduce volume and handling

## Mita Flex FRP/GRP is pultruded for optimal strength



Pultruded Composites consist of four or five main elements:

- 1) Glass roving's (strands) and mats -approx. 50% by weight
- 2) Resin - usually Polyester
- 3) Filler - usually Calcium Carbonate
- 4) UV Veil and UV additives
- 5) Fire Retardants as required

Pultruded composites remain largely impervious to corrosion regardless of application.

## Resin types for any kind of application

Mita® Flex offers 4 main resin types to accommodate the requirements of various industrial applications which can be in chemically aggressive, demanding environments.

#### Polyester Class 1 (PC1)

Colour RAL7047

Polyester is the most widely used resin. It offers good weathering properties with resistance to ultraviolet light and offers resistance to corrosion. Our polyester resin has been specially formulated to meet certain fire and smoke standards and can be classified as a "class 1" resin in accordance with BS476 P7 and ASTM E84.

#### Acrylic (AC)

Colour RAL7047

Acrylic is a formula that meets or exceeds the most stringent low flame, smoke and toxicity standards in the market today. Typical applications such as tunnels, mass transit, enclosed areas or needs where low flame, smoke and toxicity levels are critical.

#### Vinylester (VE)

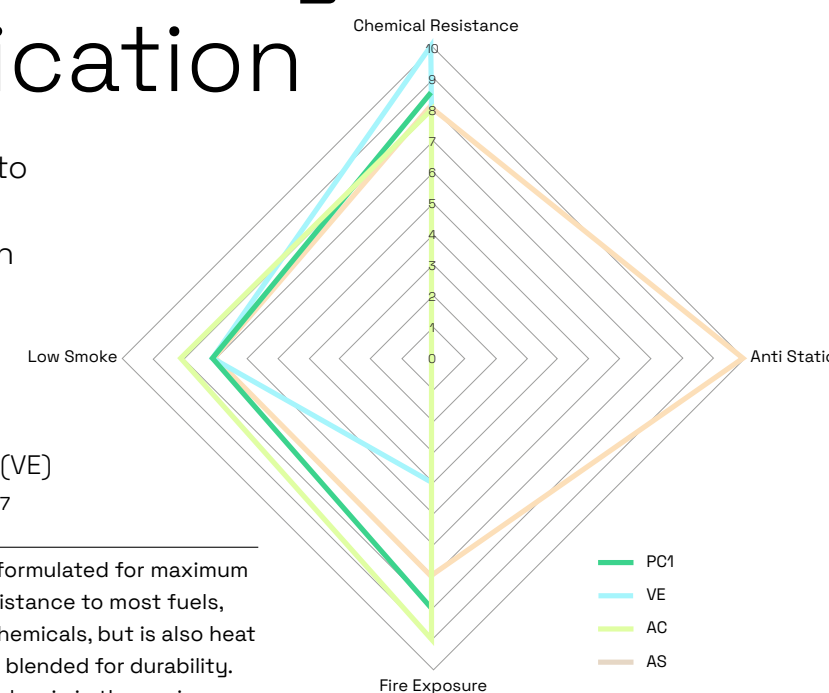
Colour RAL7047

Vinylester is formulated for maximum corrosion resistance to most fuels, vapors and chemicals, but is also heat resistant and blended for durability. It's a preferred resin in the marine industry due to its excellent corrosion resistance and ability to withstand water absorption.

#### Polyester with anti-static properties (AS)

Colour RAL9004

Polyester resin can be given anti-static properties to meet specific project requirements. Anti-static resins contain carbon powder, which increases the conductivity of the material and as a result this material requires grounding.



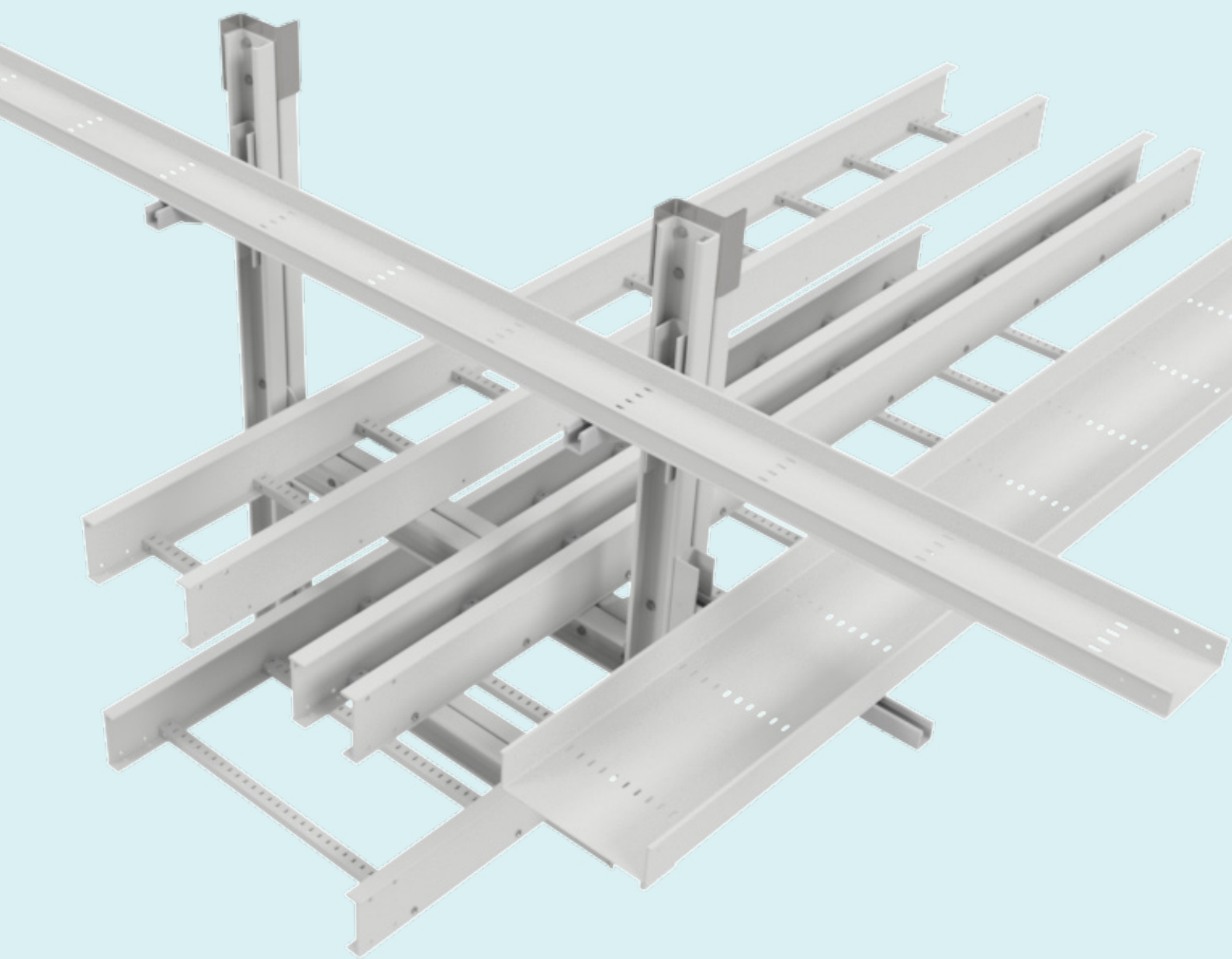
All FRP/GRP materials are standard available in Polyester Class 1 - article numbers with suffix PC1. To obtain article numbers for materials in other available resins, Polyester Antistatic (AS), Vinyl Ester (VE) and Acrylic (AC), simply replace the "PC1" suffix at the end of the article number with "AS", "VE" and "AC" respectively.

For example, cable ladder LM100 CL-150-3000;

MLM1142PC1 for material in PC1  
 MLM1142AS for material in AS  
 MLM1142PVE for material in VE  
 MLM1142PAC for material in AC

# MultiFlex Support System

Introducing a flexible support system designed to meet the demands of professional installations in harsh environments.



## Channel Support Profile

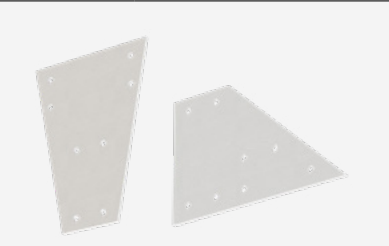
Support Channels for a robust yet flexible framework.



Product	E.number	Kg
Channel Sup profile SC100-50/6 3m PC1	1331572	
Channel Sup profile SC100-50/6 6m PC1	1331575	
Channel Sup profile SC53-40 6m PC1	1331576	

## Gusset Plate

Are used to strengthen central joints or corners that could need more bracing because of increasing loading.



Product	E.number	Kg
Gusset Plate T CH100 6mm	1331574	
Gusset Plate L CH100 6mm	1331573	

## Angle Bracket PC1

When combined with channel sleeve, allows sliding adjustability with a fixed angle inside the support channels. Fasteners needed M4825SS M10 x 35 and coach head bolts



Product	E.number	Kg
Angle Bracket PC1	1331591	

## L-bracket



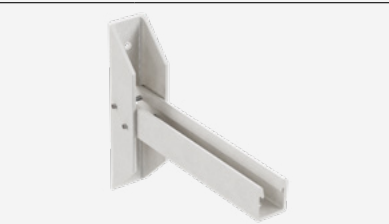
Product	Height	E.number	Kg
L Support Bracket 200PC1	0,6m	1331587	3,3
L Support Bracket 300 PC1	0,6m	1331588	3,5
L Support Bracket 400 PC1	0,6m	1331589	3,7
L Support Bracket 600 PC1	0,6m	1331590	4,2

## Central support



Product	Height	E.number	Kg
Central Support 200 PC1	0.5m	1331586	1.2
Central Support 200 PC1	1.0m	1331585	1.8
Central Support 300 PC1	0.5m	1331580	1.3
Central Support 300 PC1	1.0m	1331579	1.9
Central Support 400 PC1	0.5m	1331582	1.4
Central Support 400 PC1	1.0m	1331581	2
Central Support 600 PC1	0.5m	1331584	1.8
Central Support 600 PC1	1.0m	1331583	2.3

## LW Cantilever Arm



Product	E.number	Kg
LW Cantilever Arm 50 PC1	1331592	0,5
LW Cantilever Arm 100 PC1	1331593	0,5
LW Cantilever Arm 150 PC1	1331594	0,6
LW Cantilever Arm 200 PC1	1331595	0,6

## HD Cantilever Arm



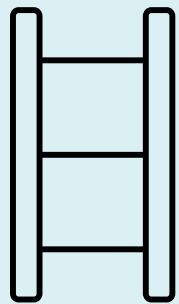
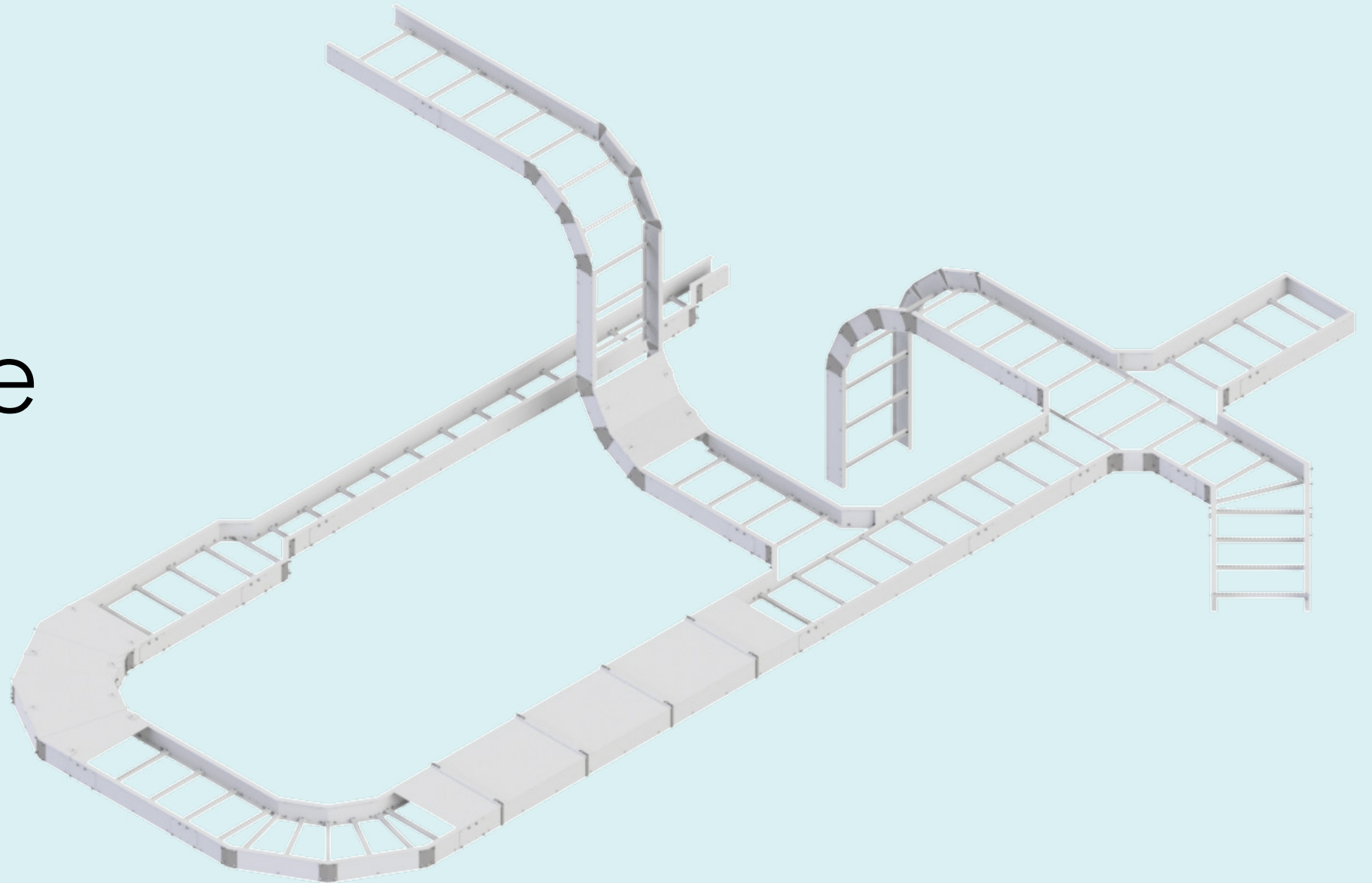
Product	E.number	Kg
HD Cantilever Arm 200 PC1	1331467	1,2
HD Cantilever Arm 300 PC1	1331468	1,6
HD Cantilever Arm 400ZPC1	1331470	
HD Cantilever Arm 600 PC1	1331469	2,2

## Channel Spring Nut M10 PC1

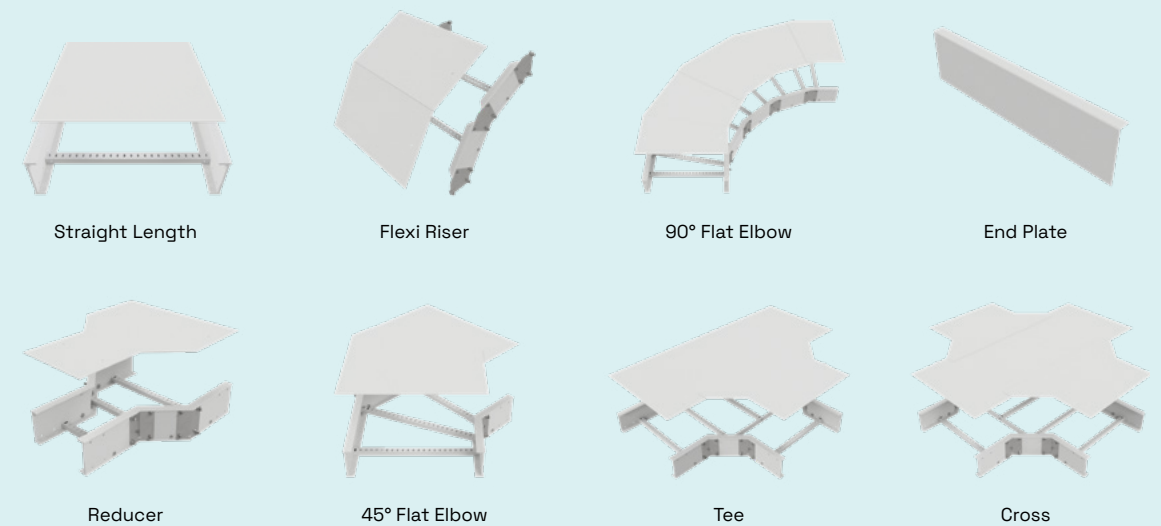


Product	E.number	Kg
Channel Spring Nut M10 PC1	1331461	

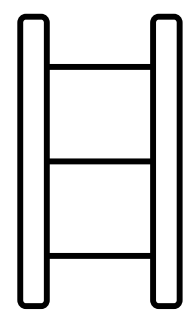
# A complete range of composite Cable Ladders with fittings & accessories



Available in three series, LM100, LMP150 and LH150, the FRP/GRP cable ladders are light, yet strong and corrosion resistant. They are designed to deliver high performance, maximum load capacity with reduced weight and improved handling, allowing easy and quick installation. The cable ladders are available in a variety of resin types.







# Cable Ladders and fitting selection

Cable Ladder  
LM100

Cable ladder with system height 100mm, used for medium duty applications.

71mm

Working Depth

Width from 150mm to 900mm

Product	E.number	Kg
CL-200-3000	1331561	9,5
CL-300-3000	1331559	10
CL-400-3000	1331562	10,6
CL-600-3000	1331560	11,7

Composite Cable Ladder range for supporting cables.

→ Tested to IEC & NEMA Standards for SWL

→ Material: FRP Polyester Class 1 (Other Resins are available)

Cable Ladder Type	Resin Selection	Rail Height (mm)	Working Depth	Rung Fixation	SWL 3m(kg/m)	Length (m)	Nema FG1 / UL568
LM100	PC1 – Polyester Class 1 AS – Polyester Antistatic VE – Vinyl ester AC – Acrylic	100	70	✓	200	3 *	12C

SWL according to IEC 61537, Test Type 3 with reduced end span 3/4 | For NEMA FG1 Load rating. Technical Department to be contacted.

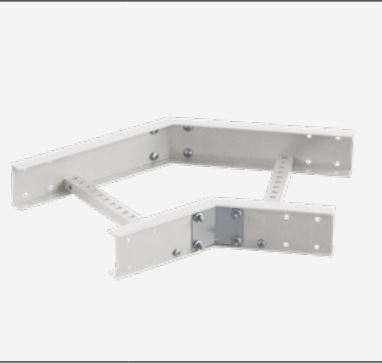
\* Alternative lengths available on request

<div>CL Splice Connector</div> <div>Fasteners not included. For splice plates in SS use M10x20 mm bolt set. For splice plates in GRP use M10x25 mm bolt set.</div>		<div>LM100</div> <table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL splice plates PC1</td><td>1331570</td><td>0,2</td></tr><tr><td>CL splice plates SS</td><td>1331571</td><td>0,2</td></tr></table>	Product	E.number	Kg	CL splice plates PC1	1331570	0,2	CL splice plates SS	1331571	0,2						
Product	E.number	Kg															
CL splice plates PC1	1331570	0,2															
CL splice plates SS	1331571	0,2															
<div>CL Horizontal Angle Bracket 90°</div> <div>Fasteners not included. For splice plates in SS use M10x20 mm bolt set. For splice plates in GRP use M10x25 mm bolt set.</div>		<div>LM100</div> <table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL hor angle bracket 90 PC1</td><td>1331566</td><td></td></tr><tr><td>CL hor angle bracket 90 SS</td><td>1331563</td><td></td></tr></table>	Product	E.number	Kg	CL hor angle bracket 90 PC1	1331566		CL hor angle bracket 90 SS	1331563							
Product	E.number	Kg															
CL hor angle bracket 90 PC1	1331566																
CL hor angle bracket 90 SS	1331563																
<div>CL Vertical Hinge</div> <div>Fasteners not included. For splice plates in SS use M10x20 mm bolt set. For splice plates in GRP use M10x25 mm bolt set.</div>		<div>LM100</div> <table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL vertical hinge PC1</td><td>1331567</td><td></td></tr><tr><td>CL vertical hinge adj SS</td><td>1331564</td><td></td></tr></table>	Product	E.number	Kg	CL vertical hinge PC1	1331567		CL vertical hinge adj SS	1331564							
Product	E.number	Kg															
CL vertical hinge PC1	1331567																
CL vertical hinge adj SS	1331564																
<div>CL/CT Fixing Clamp</div> <div>Fasteners not included. Use M10 for CL/CT Flange Fixing Clamp. For Fixing Clamp use M10 for cable ladder and M6 for cable trays.</div>		<table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL/CT Flange Fixing clamp SS</td><td>1331473</td><td></td></tr><tr><td>CL/CT Fixing clamp SS</td><td>1331471</td><td></td></tr><tr><td>CL/CT Fixing clamp PC1</td><td>1331472</td><td></td></tr></table>	Product	E.number	Kg	CL/CT Flange Fixing clamp SS	1331473		CL/CT Fixing clamp SS	1331471		CL/CT Fixing clamp PC1	1331472				
Product	E.number	Kg															
CL/CT Flange Fixing clamp SS	1331473																
CL/CT Fixing clamp SS	1331471																
CL/CT Fixing clamp PC1	1331472																
<div>CL Cover</div> <div>Material GRP, Length 3000mm</div>		<table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL Cover-200</td><td>1331539</td><td></td></tr><tr><td>CL Cover-300</td><td>1331540</td><td>5,5</td></tr><tr><td>CL Cover-400</td><td>1331541</td><td></td></tr><tr><td>CL Cover-600</td><td>1331542</td><td>10,6</td></tr></table>	Product	E.number	Kg	CL Cover-200	1331539		CL Cover-300	1331540	5,5	CL Cover-400	1331541		CL Cover-600	1331542	10,6
Product	E.number	Kg															
CL Cover-200	1331539																
CL Cover-300	1331540	5,5															
CL Cover-400	1331541																
CL Cover-600	1331542	10,6															
<div>CL Cover Fixing Clamp</div> <div>Fasteners included.</div>		<table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL Cover Fixing clamp PC1</td><td>1331462</td><td></td></tr></table>	Product	E.number	Kg	CL Cover Fixing clamp PC1	1331462										
Product	E.number	Kg															
CL Cover Fixing clamp PC1	1331462																
<div>CL Cover Clamp HD</div>		<div>LM100</div> <table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL cover clamp-200</td><td>1331464</td><td>0,3</td></tr><tr><td>CL cover clamp-300</td><td>1331465</td><td>0,3</td></tr><tr><td>CL cover clamp-400</td><td>1331466</td><td>0,4</td></tr><tr><td>CL cover clamp-600</td><td>1331463</td><td>0,5</td></tr></table>	Product	E.number	Kg	CL cover clamp-200	1331464	0,3	CL cover clamp-300	1331465	0,3	CL cover clamp-400	1331466	0,4	CL cover clamp-600	1331463	0,5
Product	E.number	Kg															
CL cover clamp-200	1331464	0,3															
CL cover clamp-300	1331465	0,3															
CL cover clamp-400	1331466	0,4															
CL cover clamp-600	1331463	0,5															
<div>CL Divider</div>		<div>LM100</div> <table><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL Divider</td><td>1331569</td><td>1,7</td></tr></table>	Product	E.number	Kg	CL Divider	1331569	1,7									
Product	E.number	Kg															
CL Divider	1331569	1,7															



CL Flat Elbow  
45° R3

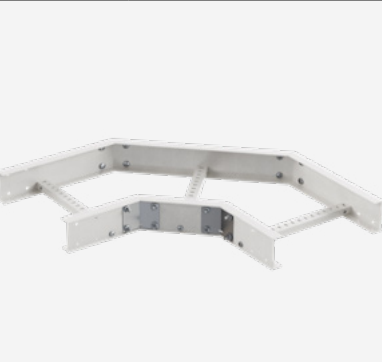
Prefabricated standard flat elbow.  
Approx radius 400mm  
Ladder Height 100 & 150  
Material: FRP Polyester Class 1 (Other Resins are available)  
Angle plates and fasteners SS316L as Standard  
(GRP Angle Plates also available)



LM100		
Product	E.number	Kg
CL Flat Elbow-200	1331549	2,4
CL Flat Elbow-300	1331550	2,6
CL Flat Elbow-400	1331551	2,8
CL Flat Elbow-600	1331552	3,7

CL Flat Elbow  
90° R3

Prefabricated standard flat elbow,  
Available in Radius R300, R600 & R900  
Ladder Height 100 & 150  
Material: GRP Polyester Class 1 (Other Resins are available)  
Angle plates and fasteners SS316L as Standard  
(GRP Angle Plates also available)



LM100		
Product	E.number	Kg
CL Flat Elbow-200	1331553	4
CL Flat Elbow-300	1331554	4,4
CL Flat Elbow-400	1331555	4,8
CL Flat Elbow-600	1331556	6,4

CL Equal Tee R3

Prefabricated standard horizontal tee,  
Standard Radius R300, R600 & R900 -  
Other Radius available Ladder Height  
100 & 150  
Material: FRP Polyester Class 1 (Other Resins are available)  
Angle plates and fasteners SS316L as Standard  
(GRP Angle Plates also available)



LM100		
Product	E.number	Kg
CL Equal Tee-200	1331545	5,8
CL Equal Tee-300	1331546	6,2
CL Equal Tee-400	1331547	6,7
CL Equal Tee-600	1331548	8

CL Flexi Riser  
Internal 90° R4

Fasteners not included.



LM100		
Product	E.number	Kg
CL Flexi Riser-200	1331543	2,1
CL Flexi Riser-300	1331557	2,2
CL Flexi Riser-400	1331544	2,2
CL Flexi Riser-600	1331558	2,3

CL Z Reducer

Prefabricated standard Reducer,  
Available Central/Straight, Left or  
Right Hand  
Height 100 & 150  
Material: GRP Polyester Class 1  
(Other Resins are available)  
Angle plates and fasteners SS316L  
are included.  
(GRP Angle Plates also available)

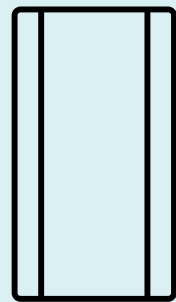


LM100		
Product	E.number	Kg
CL Z Reducer-200	1331565	0,9
CL Z Reducer-300	1331568	1

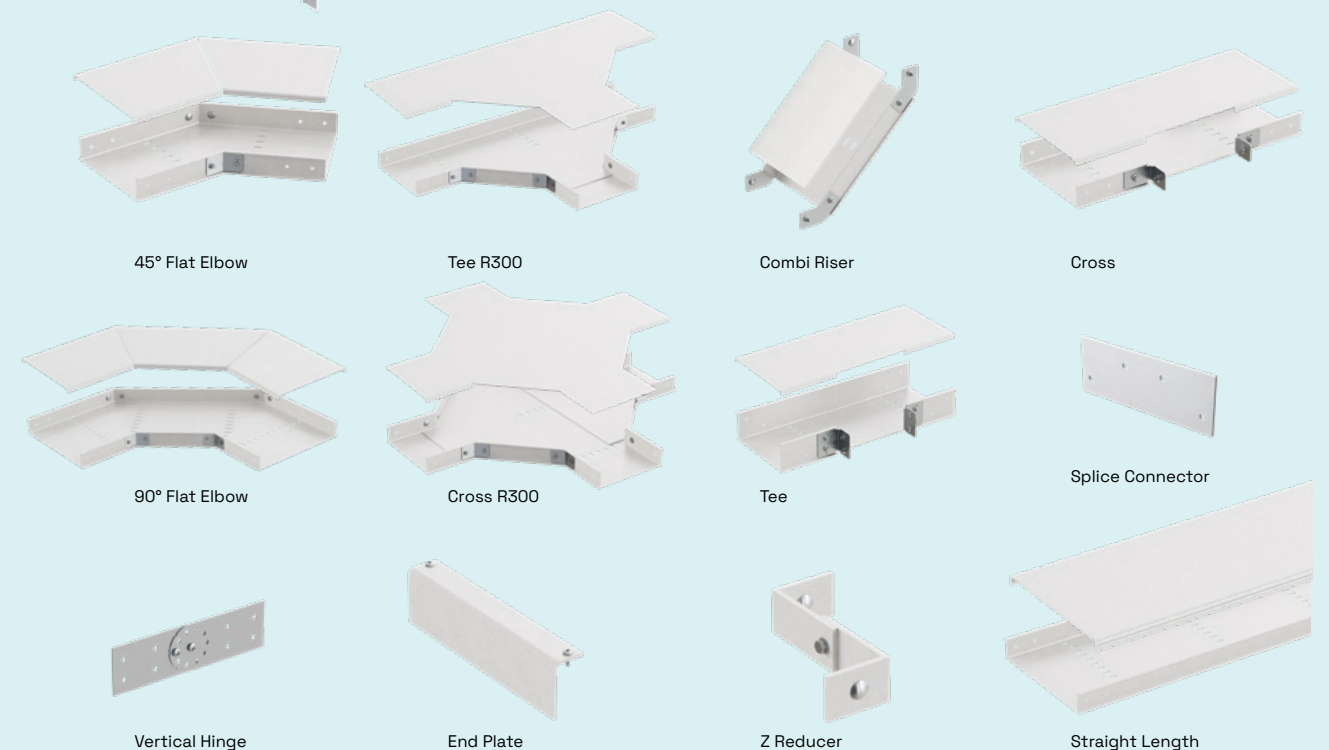
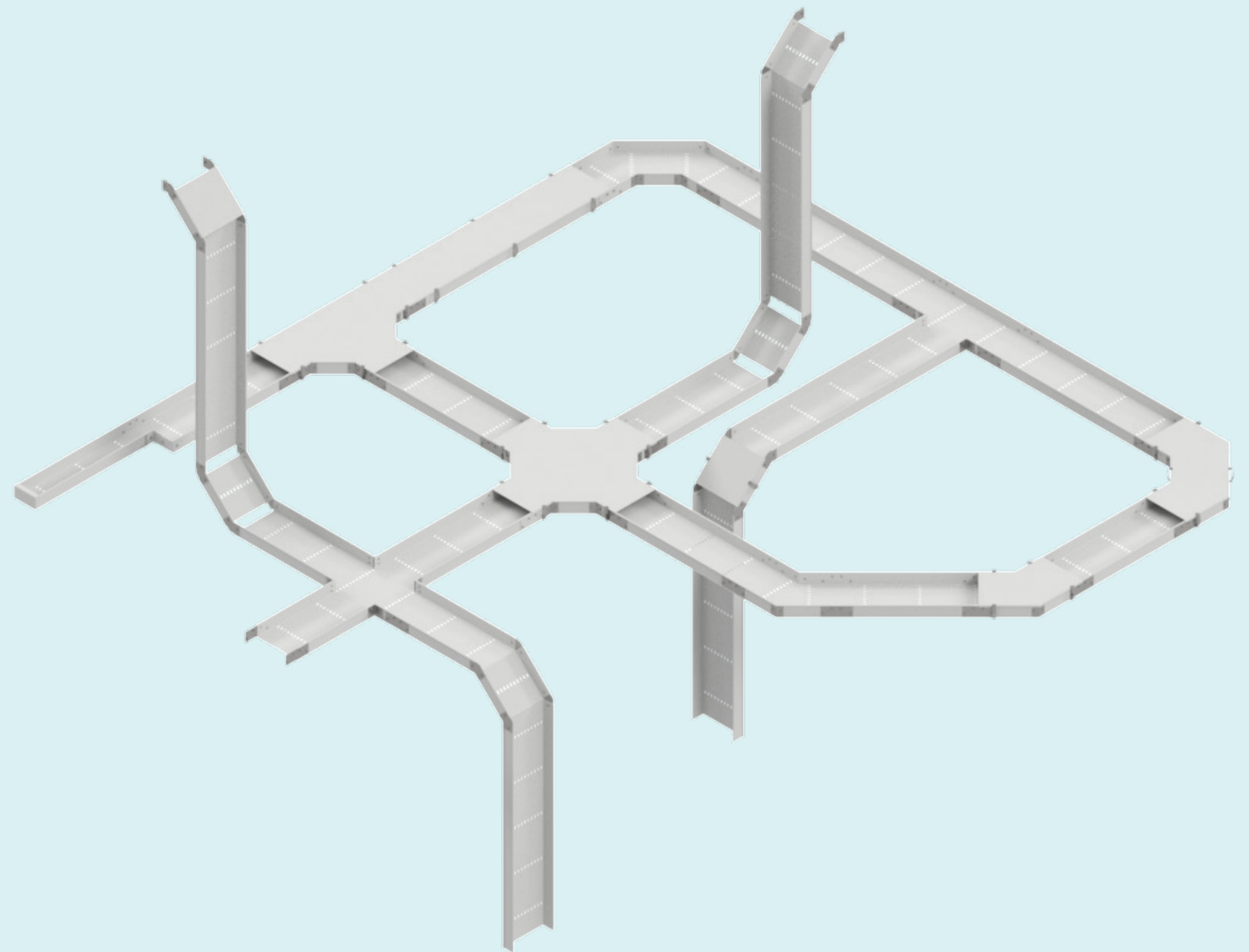




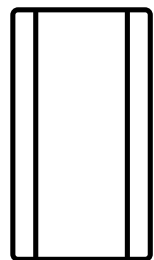
# A complete range of composite perforated Cable Trays with fittings & accessories



Available in two series, CT50 and CT80, the FRP/GRP cable trays are light, yet strong and corrosion resistant. They are designed to deliver high performance, maximum load capacity with reduced weight and improved handling, allowing easy and quick installation. The cable trays are available in a variety of resin types.

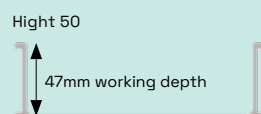






# Cable Trays and fitting selection

## Cable Tray CT50



Product	E.number	Kg
CT50-50-3000	1331481	2,9
CT50-100-3000	1331482	3,7
CT50-150-3000	1331483	4,5
CT50-200-3000	1331484	5,5
CT50-300-3000	1331485	7,8

Return Flange type profile design for added strength.

→ For Electrical & Instrumentation Applications.

→ Length 3000mm

Cable Tray Type	Resin Selection	Rail Height (mm)	Working Depth	SWL 1,5m(kg/m)	Length (m)
CT50	PC1 – Polyester Class 1 AS – Polyester Antistatic VE – Vinyl ester AC – Acrylic	50	47	70	3 *

SWL according to IEC61537, test type 3.

\* Alternative lengths available on request

## CT Splice Plates

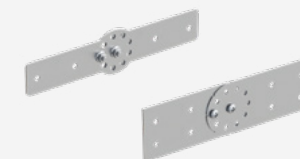
Fasteners not included.  
Use M6 x 16 for Splice plate GRP.  
Use M6 x 12 SS for Splice plate SS.



CT50		
Product	E.number	Kg
Splice plate PC1	1331480	
Splice plate SS	1331479	

## CT Vertical Hinge

Fasteners not included.  
Use M6 x 16 for Splice plate GRP.  
Use M6 x 12 SS for Splice plate SS.



CT50		
Product	E.number	Kg
CT Vertical Hinge PC1	1331506	

## CT Horizontal Splice Angle Bracket 90°

Fasteners not included.  
Use M6 x 16 for Splice plate GRP.  
Use M6 x 12 SS for Splice plate SS.



CT50		
Product	E.number	Kg
CT Horizontal Splice Angle 90° PC1	1331507	

## CT Cover

Snap-Fit Covers provide an easy to install and positive fixing with additional clips available for most applications or Heavy duty cover clamps for harsh conditions  
Length 3000mm



CT50		
Product	E.number	Kg
CT Cover-50-3000 PC1	1331513	1,5
CT Cover-100-3000 PC1	1331514	2,2
CT Cover-150-3000 PC1	1331515	3
CT Cover-200-3000 PC1	1331516	3,8
CT Cover-300-3000 PC1	1331517	5,3

## CT Grip Clip

The SS316L Grip Clip provides an easy to install solution to secure the tray cover  
Tray heights 50mm & 80mm



CT50		
Product	E.number	Kg
CT grip clip SS	1331528	0,01

## CT HD Clamp

Heavy Duty cover clamp for securing snap fit covers in exposed wind areas.  
Tray heights 50mm & 80mm  
Full GRP Construction



CT50		
Product	E.number	Kg
CT HD cover clamp-50	1331474	
CT HD cover clamp-100	1331475	
CT HD cover clamp-150	1331476	
CT HD cover clamp-200	1331477	
CT HD cover clamp-300	1331478	

## CT Divider

Divider for separation of different cable types.  
Tray heights 50mm & 80mm



CT50		
Product	E.number	Kg
CT Divider	1331533	1,2



CT Flat Elbow  
45° R3

Prefabricated standard flat elbow,  
Tray heights 50mm & 80mm  
Angle plates and fasteners SS316L  
as Standard (GRP Angle Plates also  
available)



CT50		
Product	E.number	Kg
CT Flat Elbow-50	1331491	0,5
CT Flat Elbow-100	1331492	0,7
CT Flat Elbow-150	1331493	0,8
CT Flat Elbow-200	1331494	1
CT Flat Elbow-300	1331495	1,5

CT Flat Elbow  
90° R3

Prefabricated standard flat elbow,  
(Other Radius available)  
Tray heights 50mm & 80mm  
Angle plates and fasteners SS316L  
as Standard (GRP Angle Plates also  
available)



CT50		
Product	E.number	Kg
CT Flat Elbow-50	1331486	0,9
CT Flat Elbow-100	1331487	1,1
CT Flat Elbow-150	1331488	1,4
CT Flat Elbow-200	1331489	1,7
CT Flat Elbow-300	1331490	2,6

CT Equal Tee  
R3

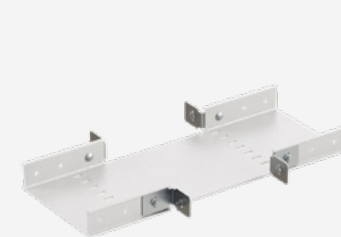
Prefabricated standard Equal Tee,  
available also as Radius 300mm  
Tray heights 50mm & 80mm  
Angle plates and fasteners SS316L  
as Standard (GRP Angle Plates also  
available)



CT50		
Product	E.number	Kg
CT Equal Tee-50	1331508	1,4
CT Equal Tee-100	1331509	1,8
CT Equal Tee-150	1331510	2,3
CT Equal Tee-200	1331511	2,8
CT Equal Tee-300	1331512	4,0

CT Cross Piece

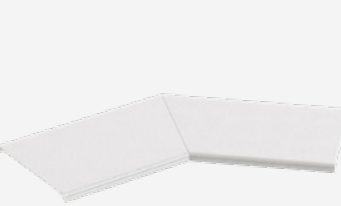
Prefabricated standard Cross Piece,  
available also as Radius 300mm  
Tray heights 50mm & 80mm  
Angle plates and fasteners SS316L  
as Standard (GRP Angle Plates also  
available). Fasteners not included.



CT50		
Product	E.number	Kg
CT Cross Piece-50	1331496	0,4
CT Cross Piece-100	1331497	0,6
CT Cross Piece-150	1331498	0,7
CT Cross Piece-200	1331499	0,9
CT Cross Piece-300	1331500	1,5

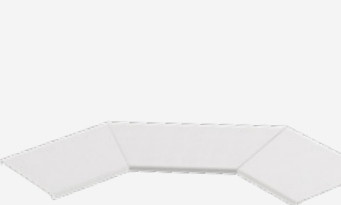
CT Flat Elbow Cover  
45° R3

Prefabricated Snap-Fit Covers

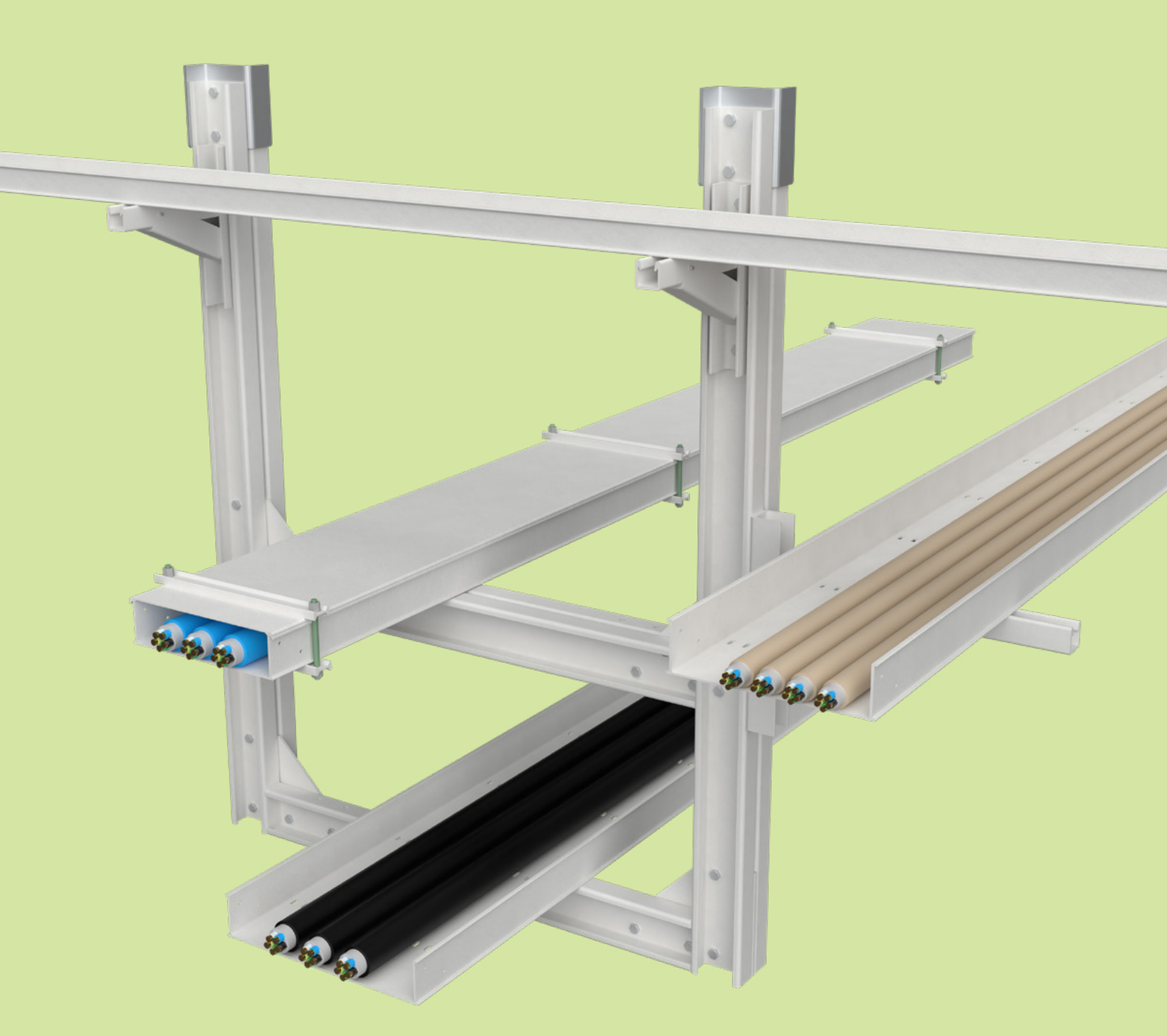


CT50		
Product	E.number	Kg
CT Flat Elbow Cover-50	1331523	0,2
CT Flat Elbow Cover-100	1331524	0,3
CT Flat Elbow Cover-150	1331525	1,3
CT Flat Elbow Cover-200	1331526	0,6
CT Flat Elbow Cover-300	1331527	0,9

CT Flat Elbow Cover  
90° R3



CT50		
Product	E.number	Kg
CT Flat Elbow Cover-50	1331518	0,3
CT Flat Elbow Cover-100	1331519	0,5
CT Flat Elbow Cover-150	1331520	0,8
CT Flat Elbow Cover-200	1331521	1
CT Flat Elbow Cover-300	1331522	1,6



CT Combi Riser

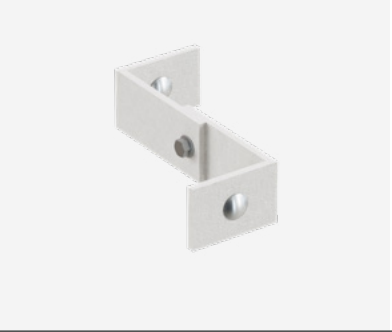
Can be used as both inside or  
outside riser. Fasteners not  
included.



CT50		
Product	E.number	Kg
CT Combi Riser-50	1331501	0,6
CT Combi Riser-100	1331502	0,6
CT Combi Riser-150	1331503	0,7
CT Combi Riser-200	1331504	0,8
CT Combi Riser-300	1331505	1,1


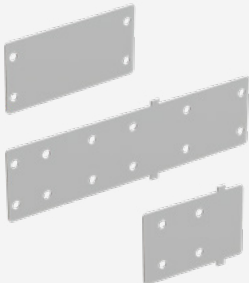
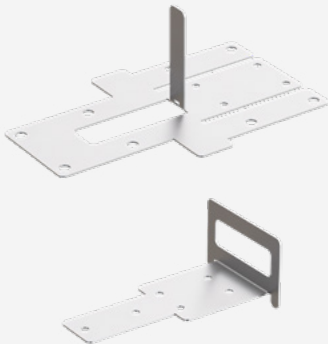
CT Reducer

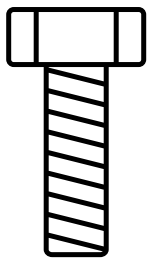
Prefabricated reducer part, for  
joining two trays of different width  
Tray heights 50mm & 80mm  
Fasteners SS316L are included.



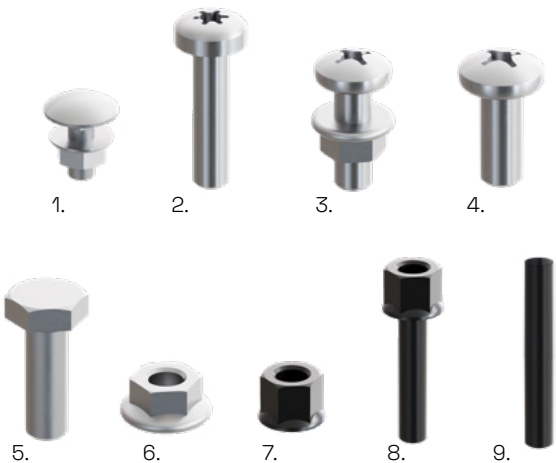
CT50		
Product	E.number	Kg
CT Reducer-50	1331529	0,1
CT Reducer-100	1331530	0,2
CT Reducer-150	1331531	0,2
CT Reducer-200	1331532	0,2

# Accessories

Bolted Starter Bracket		<table><tr><th colspan="3">CT50</th></tr><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>Bolted Starter Bracket HDG</td><td>1331577</td><td></td></tr><tr><td>Bolted Starter Bracket SS</td><td>1331578</td><td></td></tr></table>	CT50			Product	E.number	Kg	Bolted Starter Bracket HDG	1331577		Bolted Starter Bracket SS	1331578				
CT50																	
Product	E.number	Kg															
Bolted Starter Bracket HDG	1331577																
Bolted Starter Bracket SS	1331578																
Channel Support Drill Template		<table><tr><th colspan="3">CT50</th></tr><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>Channel Sup Drill Template -1 SS</td><td>1331534</td><td></td></tr><tr><td>Channel Sup Drill Template -2 SS</td><td>1331535</td><td></td></tr><tr><td>Channel Sup Drill Template -3 SS</td><td>1331536</td><td></td></tr></table>	CT50			Product	E.number	Kg	Channel Sup Drill Template -1 SS	1331534		Channel Sup Drill Template -2 SS	1331535		Channel Sup Drill Template -3 SS	1331536	
CT50																	
Product	E.number	Kg															
Channel Sup Drill Template -1 SS	1331534																
Channel Sup Drill Template -2 SS	1331535																
Channel Sup Drill Template -3 SS	1331536																
Cable Ladder / Cable tray Drill Template		<table><tr><th colspan="3">CT50</th></tr><tr><th>Product</th><th>E.number</th><th>Kg</th></tr><tr><td>CL 100/150 Drill Template SS</td><td>1331537</td><td></td></tr><tr><td>CT 50/80 Drill Template SS</td><td>1331538</td><td></td></tr></table>	CT50			Product	E.number	Kg	CL 100/150 Drill Template SS	1331537		CT 50/80 Drill Template SS	1331538				
CT50																	
Product	E.number	Kg															
CL 100/150 Drill Template SS	1331537																
CT 50/80 Drill Template SS	1331538																



# Bolts & Bolt sets



Product	E.number	Kg
1. Bolt Set M6 x 12 SS	1331459	0,01
1. Bolt Set Square Neck M6 x 16 SS	1331460	0.011
2. Bolt M8 x 25 Pan SS	1331456	0.021
3. Bolt Set M10 x 25 A4 SS	1331451	0.043
3. Bolt Set M10 x 30 A4 SS	1331452	0.046
4. Bolt M10 x 25 SS	1331455	0.03
5. Hex Bolt M10 x 30 SS	1331453	0.03
6. Flange Nut M10 SS	1331454	0.015
7. Long Thread Hex Nut M10 PC1	1331457	0.005
8. Bolt Stud M10 x 50 PC1	1331450	0.01
9. Threaded Rod M10 3m PC1	1331458	0,55

## MultiFlex support system bolt recommendation:

- When bolting Mita flex support system standard bolt size is 10 mm.
- For connections back to back use M10x25 boltset
- For use with gusset plates use M10x30 boltset

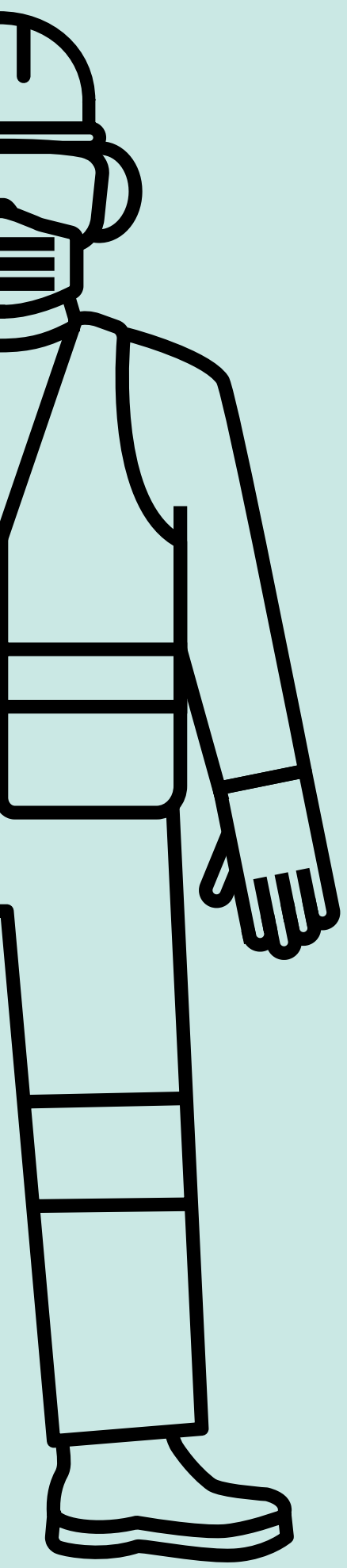
## Cable ladder system:

→ All bolts M10  
When using stainless steel accessories (splice plates, hinges etc) standard bolt set is M10x20 mm, when using GRP accessories standard bolt set is M10x25mm

## Cable tray system:

→ All bolts M6  
When using stainless steel accessories (splice plates, hinges etc) use M6 x 12mm bolt set, for GRP accessories use M6 x 16mm bolt set





# safety first



## Tool selection

On-site cutting is easily done with the use of portable circular power saws and drilling equipment. For best results a diamond or carbide edged saw blade and carbide tip drill bits are the best solution.

## Cutting and drilling

When cutting, grinding or sanding FRP products it is important to wear suitable protective equipment. Safety glasses, dust mask rated at N94 or above is recommended and gloves are necessary.

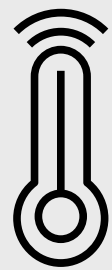
We also recommend wearing long-sleeved shirt or overalls when working with FRP. In some cases non-toxic dust is created if you are not in a well ventilated environment and this can cause some small irritations so make sure you wear the right gear at all times.

Mechanical Properties	ASTM	Units	Value	Units	Value
Tensile Stress, LW	D-638	psi	30,000	MPa	206.8
Tensile Stress, CW	D-638	psi	7,000	MPa	48.2
Tensile Modulus, LW	D-638	106 psi	2.5	GPa	17.2
Tensile Modulus, CW	D-638	106 psi	0.8	GPa	5.5
Compressive Stress, LW	D-695	psi	30,000	MPa	206.8
Compressive Stress, CW	D-695	psi	15,000	MPa	103.4
Compressive Modulus, LW	D-695	106 psi	2.5	GPa	17.2
Compressive Modulus, CW	D-695	106 psi	1.0	GPa	6.9
Flexural Stress, LW	D-790	psi	30,000	MPa	206.8
Flexural Stress, CW	D-790	psi	10,000	MPa	68.9
Flexural Modulus, LW	D-790	106 psi	1.8	GPa	12.4
Flexural Modulus, CW	D-790	106 psi	0.8	GPa	5.5
Modulus of Elasticity	Full Section	106 psi	2.8	GPa	19.3
Shear Modulus	----	106 psi	0.45	GPa	3.1
Short Beam Shear	D-2344	psi	4,500	MPa	31.0
Punch Shear	D-732	psi	10,000	MPa	68.9
Notched Izod Impact, LW	D-256	ft - lbs/in	25	J/mm	1.33
Notched Izod Impact, CW	D-256	ft - lbs/in	4	J/mm	0.21
Bearing Strength	D-953	psi	30,000	MPa	206.8
Physical Properties	ASTM	Units	Value	Units	Value
Bar Hardness	D-2583	----	45	----	45
24 Hour Water Absorption	D-570	% Max	0.45	% Max	0.45
Density	D-792	lbs/in3	0.062 - 0.070	g/cm3	1.72 - 1.94
Coefficient of Thermal Expansion, LW	D-696	106in/in°F	7	10-6cm/cm°C	12
Electrical Properties	ASTM	Units	Value	Units	Value
Arc Resistance, LW	D-495	seconds	120	seconds	120
Dielectric Strength, LW	D-149	kv/in	35	kv/mm	1.37
Dielectric Strength, PF	D-149	volts/mil	200	volts/mil	200
Dielectric Constant, PF	D-150	@60hz	5	@60hz	5
Flammability Properties	ASTM		Units	Value	
Tunnel Test	E-84		Flame Spread	25 max	
Flammability	D-635		----	Non-Burning	
NBS Smoke Chamber	E-662		Smoke Density	600 - 700	





# Effect on strength with temperature



The strength properties of reinforced plastics are reduced when the material is continually exposed to high temperatures. Loading shall be reduced based on the below table. Percentages shown are approximates.

When high temperatures are present please consult the manufacturer for application advice. Freezing temperatures do not effect the load rating of cable ladders and the cable management system as the FRP material does not be-come fragile. Special consideration is required when service temperatures are over 200° Fahrenheit/ 94° Celsius. Please contact us for expert consultation for special requirements.

Temperature	Polyester Resin % of Strength	Vinyl Ester % of Strength
75°F (24°C)	100%	100%
100°F (38°C)	90%	100%
125°F (52°C)	78%	100%
150°F (66°C)	68%	90%
175°F (79°C)	60%	90%
200°F (93°C)	52%	75%

The test values in this chart are obtained from laboratory testing

# Thermal Contraction and Expansion

The table to the below compares the thermal contraction and expansion based on various temperature differentials for fiberglass, steel and aluminium cable trays. The values shown represent the length of cable tray that will produce a 16 mm (5-B\*) movement between expansion connectors for the indicated temperature differential. Fiberglass has the least movement and requires least expansion joints. This simplifies the design and installation and minimizes expansion dynamic forces on the structure.

Temperature Differential	FRP Ft.(m)	Steel Ft. (m)	Aluminium Ft. (m)
25°F (14°C)	417 (126)	320 (97)	162 (49)
50°F (28°C)	208 (63)	160 (48)	81 (25)
(42°C)	138 (42)	106 (48)	54 (16)
100°F (56°C)	104 (32)	80 (24)	40 (12)
125°F (69°C)	83 (25)	63 (19)	32 (10)
150°F (83°C)	69 (21)	53 (16)	26 (8)
175°F (83°C)	59 (17)	45 (13)	23 (6)



# Material & Product Standards and Certifications

## Fire performance

**BS 476 PART 7: CLASS 1**  
This is a vertical flame spread test and its one of the most requested certificates.

**BS 476 P6**  
Specifies a method of test, the result is expressed as a fire propagation index.

**ASTM E84 (from UL 0568)**  
Tests the rate of flame spread and smoke emissions of materials.

**ASTM D635**  
Standard test method for measuring the rate of burning and duration of burning in plastic products. / Class HB

**ISO 5659-2**  
Specifies a method of measuring smoke production from the exposed surface of specimens of materials or composites.

**ISO 4589-2**  
Determination of burning behavior by oxygen index

**ANSI/UL94**  
Plastics flammability standard for horizontal and vertical class.

**IEC 61537:**  
Non-flame propagating system component class - Contribution to fire test IEC60695-2-11 (GWT) / Spread of fire 1kW test IEC60695-11-2

**ISO 6721-11**  
Methods for determining a value of the glass transition temperature from the dynamic mechanical properties

**EN14582-2016**  
This standard specifies a combustion method for the determination of halogen and sulfur contents in waste materials by combustion.

**IEC 60754-series**  
Halogen contents determination only on materials for cables.

**IEC 63355:2022**  
"New" Standard to determine the Halogen content specially for "Cable Management Systems."

## Weathering / Chemical corrosion

**ASTM G154-16**  
Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials. (Color DeltaE measurement)

**ISO 4892-2**  
Plastics- Methods of exposure to laboratory light sources - Part2- xenon-arc lamps (preferred test for "Cable Management Systems.")

**ASTM D 4329 (from UL 0568)**  
Ultraviolet light exposure or ASTM G 155 Arc xenon light exposure (evaluating mechanical acc. to ASTM D 790)

**ISO 4582**  
Methods to determine changes in colour and other appearance properties, and variations in mechanical or other properties

**ASTM B-117**  
Tests a materials ability to resist the corrosive effect of salt water.

**ASTM D570**  
Determine the rate of absorption of water by immersing the specimen in water for a specific period of time.

**ASTM C581**  
Determining Chemical Resistance of Thermosetting Resins Used in Glass-Fiber-Reinforced Structures

## Isolation / Electrical properties

Electrically non-conductive system component -resistivity values of 100 MΩ or greater.

**ASTM D257-14**  
This test measures the volume and surface resistivity of a material.

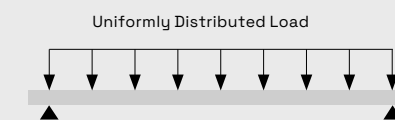
**ASTM D149 (from UL 0568)**  
Dielectric Strength

**IEC60079-0**  
General requirements for construction, testing and marking of Ex Equipment and Ex Com-ponents (for Antistatic resin)

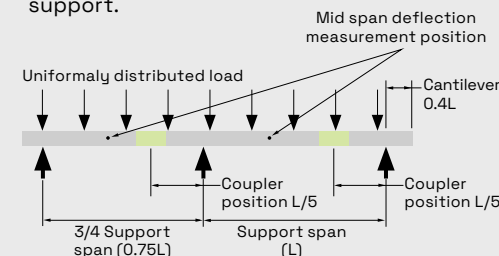
## Mechanical performance

**UL 0568**  
Nonmetallic Cable Tray Systems

**Nema FG-1**  
Standard that defines the construction and testing standards for nonmetallic cable tray systems



**IEC 61537**  
International Standard specifies requirements and tests for cable tray systems and cable ladder systems intended for the Cable support.



**IEC 61914 (Short Circuit test)**  
Cable cleats for electrical installations\_ 9.5 Test for resistance to electromechanical force.

FRP Cable ladders, trays and accessories have been designed to withstand 25 years or more service life. Nevertheless, this cannot be achieved by product alone, Actual service of 25 years can only be achieved if cable ladders, trays and accessories are:

→ NOT subjected to any abnormal mechanical loads or mechanical impacts that would have long term effect on the performance of the product.

→ NOT subjected to abnormal corrosive atmosphere or subjected to direct contact with corrosive substance.

→ NOT subjected to any major alteration to the structure of the product or cut away areas or drill holes outside of the recommended installation guidelines.

# Chemical Exposure Guide

CHEMICAL	Polyester Class 1 resin		Vinyl Ester Resin	
ENVIRONMENT	%Concentration	Max Op, Temp. F/C	% Concentration	Max Op, Temp. F/C
Acetic Acid	50	125/52	50	180/82
Aluminum Hydroxide	100	160/71	100	180/82
Ammonium Chloride	All	170/77	All	210/99
Ammonium Hydroxide	28	N/R	28	100/38
Ammonium Bicarbonate	15	125/52	15	160/70
Ammonium Sulfate	ALL	170/77	ALL	210/99
Benzene	N/R	N/R	N/R	N/R
Benzoic Acid	SAT	150/66	SAT	210/99
Borax	SAT	170/77	SAT	210/99
Callum Carbonate	ALL	170/77	ALL	180/82
Calcium Nitrate	ALL	180/82	ALL	210/99
Carbon Tetrachloride	N/R	N/R	N/R	150/65
Chlorine, Dry Gas	–	140/60	–	210/99
Chlorine Water	SAT	80/27	SAT	200/93
Chromic Acid	5	70/21	5	150/65
Citric Acid	ALL	170/77	ALL	210/99
Copper Chloride	ALL	170/77	ALL	210/99
Copper Cyanide	ALL	170/77	ALL	210/99
Copper Nitrate	ALL	170/77	ALL	210/99
Ethanol	50	75/24	50	100/38
Ethylene Glycol	100	90/32	100	200/93
Ferric Chloride	ALL	170/77	ALL	210/99

Ferrous Chloride	ALL	170/77	ALL	210/99
Formaldehyde	50	75/24	50	150/65
Gasoline	100	80/27	100	180/82
Glucose	100	170/77	100	210/99
Glycerine	100	150/66	100	210/99
Hydrobromic Acid	50	120/49	50	150/65
Hydrochloric Acid	37	75/24	37	150/65
Hydrogen Peroxide	5	100/38	5	150/65
Lactic Acid	ALL	170/77	ALL	210/99
Lithium Chloride	SAT	150/66	SAT	210/99
Magnesium Chloride	ALL	170/77	ALL	210/99
Magnesium Nitrate	ALL	140/60	ALL	210/99
Magnesium Sulfate	ALL	170/77	ALL	210/99
Mercuric Chloride	100	150/66	100	210/99
Mercurous Chloride	ALL	140/60	ALL	210/99
Nickel Chloride	ALL	170/77	ALL	210/99
Nickel Sulfate	ALL	170/77	ALL	210/99
Nitrate Acid	20	70/21	20	120/49
Oxalic Acid	ALL	75/24	ALL	210/99
Perchloric Acid	N/R	N/R	N/R	100/38
Phosphoric Acid	100	120/49	100	210/99
Potassium Chloride	ALL	170/77	ALL	210/99
Potassium Dichromate	ALL	170/77	ALL	210/99
Potassium Nitrate	ALL	170/77	ALL	210/99
Potassium Sulfate	ALL	170/77	ALL	210/99
Propylene Glycol	ALL	170/77	ALL	210/99
Sodium Acetate	ALL	160/71	ALL	210/99
Sodium Bisulfate	ALL	170/77	ALL	210/99
Sodium Bromide	ALL	170/77	ALL	210/99
Sodium Cyanide	ALL	170/77	ALL	210/99
Sodium Hydroxide	N/R	N/R	N/R	180/82
Sodium Nitrate	ALL	170/77	ALL	210/99
Sodium Sulfate	ALL	170/77	ALL	210/99
Stannic Chloride	ALL	160/71	ALL	210/99
Sulfuric Acid	25	75/24	25	100/38
Tartaric Acid	ALL	170/77	ALL	210/99
Vinegar	100	170/77	100	210/99
Water, Distilled	100	170/77	100	180/82
Zinc Nitrate	ALL	170/77	ALL	210/99
Zinc Sulfate	ALL	170/77	ALL	210/99





# Responsible business



Wibe Group is a multinational company with operations in different parts of the world. We want to run a responsible business, by understanding and managing all effects in the value chain. We see it not only as a responsibility but also an opportunity to influence and drive sustainable development for our business and communities.

Our ambition is to take the lead in our industry. With a clear vision and long term commitment, we will get there.

In 2024, we received a Silver Sustainability Rating from EcoVadis, placing us in the top 15% of all companies in the world, and top 3% of our industry segment. Join us on our journey to create sustainable solutions for generations to come!

Read more about our sustainability work on [wibe-group.com](https://wibe-group.com)



