

GRP
Cable Ladders and Trays

 **CLIPSAL**[®]

by Schneider Electric

**Outstanding at outlasting
in tough environments**

clipsal.com

CABLE MANAGEMENT SOLUTIONS

Corrosion resistant composite technology

For your heavy industry cabling needs there is one clear winner... Clipsal glass-reinforced plastic (GRP) cable ladders and trays. Clipsal's Australian-made GRP products not only look attractive; they are stronger, last longer and are simpler to install than steel equivalents.

Outstanding at outlasting

Choosing GRP cable support products ahead of steel variants makes sense when you calculate their significantly longer lifespan; over three times longer than steel alternatives! You can expect up to 30 years of use from our range of GRP cable support products.

Where steel is prone to corrosion within a few years, GRP cable support products are completely corrosion resistant. They're impervious to substances such as saline, chlorine and hydrogen sulphide, which saves you a lot of money on maintenance costs.

Superior safety performance

GRP cable support products can be safely installed where there are risks associated using steel products. GRP cable support products are 'non-sparking' and can be installed and worked on in any hazardous areas. GRP cable ladders and trays will not conduct heat or the effects of a fire either, as they have a slow rate of heat transfer. Because GRP cable support products have excellent insulation properties they protect the cabling from overheating in extreme heat environments. No Earthing is required because of their high insulation value, which saves time and potentially lives.

UV Veil

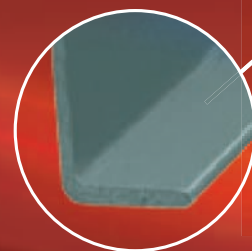
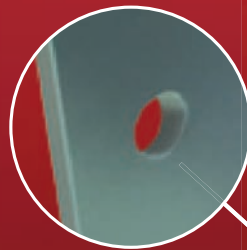
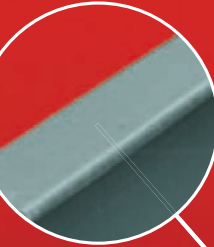
Surface covering protects against the effects of weathering and is fully protected against UV.

Through-thickness protection

Additional additives are included in the resin mix to provide through-thickness protection for cut ends, slots and holes.

Tough GRP Pultrusion

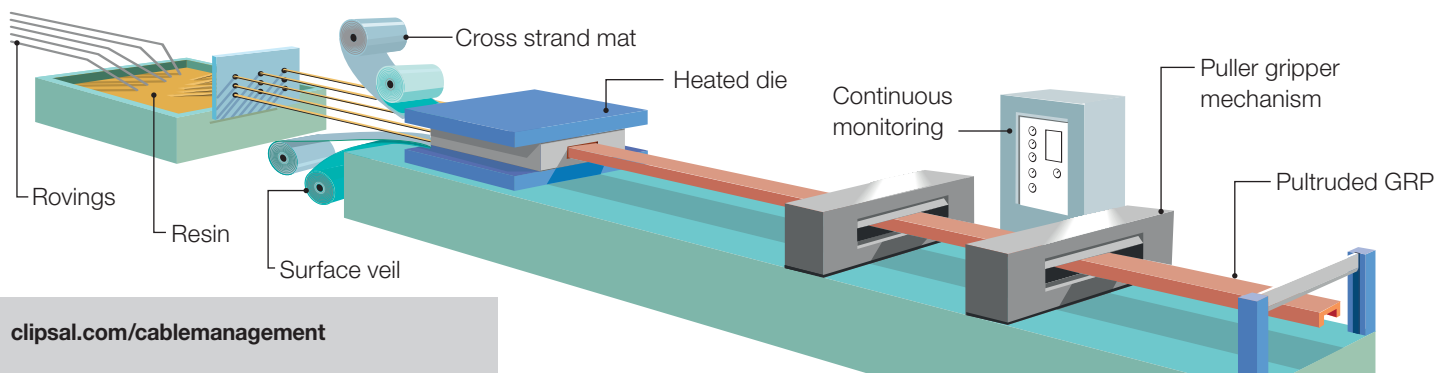
Unidirectional and cross strand glass mat produces a very solid, structurally sound profile.



Low installation costs without shutdown

GRP is non-sparking and can be installed in any hazardous area without the necessity to shut down costly processes. GRP can be cut and drilled with hand tools and there's no need for deburring or filing of sharp edges. GRP does not need Earthing.

P U L T R U D E D G R P



Simply outlasts any other



Strong bonds

Rungs are mechanically bonded using corrosion resistant nuts, bolts and lock washers to ensure maximum mechanical strength.

Tray and ladder variants

Clipsal provide GRP cable support systems in tray and ladder variants. Lidded GRP is increasingly being used outdoors in hotter climates in non-corrosive applications where the effect of the sun on steel cable trays is heating the cables to such an extent that they become de-rated.

Time saving installation

GRP cable support products are easily cut and drilled with hand tools, accommodating onsite assembly and configuration. In most applications, work can be undertaken without the need for a costly shutdown process. Unlike steel, GRP cable support products do not need to be deburred or require sharp edges to be filed down. And drilled edges do not need repairing with galvanising paint, as you would need to do with steel products. You can cut your installation time up to 40% by choosing Clipsal GRP cable ladders and trays.

Benefits

Saves you money

- Longer life cycle of product (up to 30 years).
- No need to shut down business operations for installation.
- Faster installation.

Quicker installation

- Easily cut and drilled using metal-working tools.
- Onsite configuration.
- No deburring, painting or Earthing required.

Superior performance

- Superior corrosion resistance compared to stainless steel.
- Does not permanently deform under high loads.
- Excellent insulation to prevent heat transfer.

C O R R O S I O N R E S I S T A N T

Clipsal GRP cable support products are produced by means of the pultrusion process. This uses a combination of uni-directional rovings and cross strand glass mat which is resin impregnated and pulled through a heated die to produce a very solid, structurally sound profile.

The material is covered with a surface veil to protect against the effects of weathering and is fully protected against U.V. Additional additives are included in the resin mix to provide through-thickness protection for cut ends, slots and holes.

The strongest construction **of the highest quality**

GRP

Cable Ladders and Trays

Strongest GRP cable support products



Unbeatable construction

Clipsal GRP cable support products are produced by means of the pultrusion process. This uses a combination of unidirectional and cross strand glass mat, which is resin impregnated and pulled through a heated die to produce a very solid, structurally sound profile.

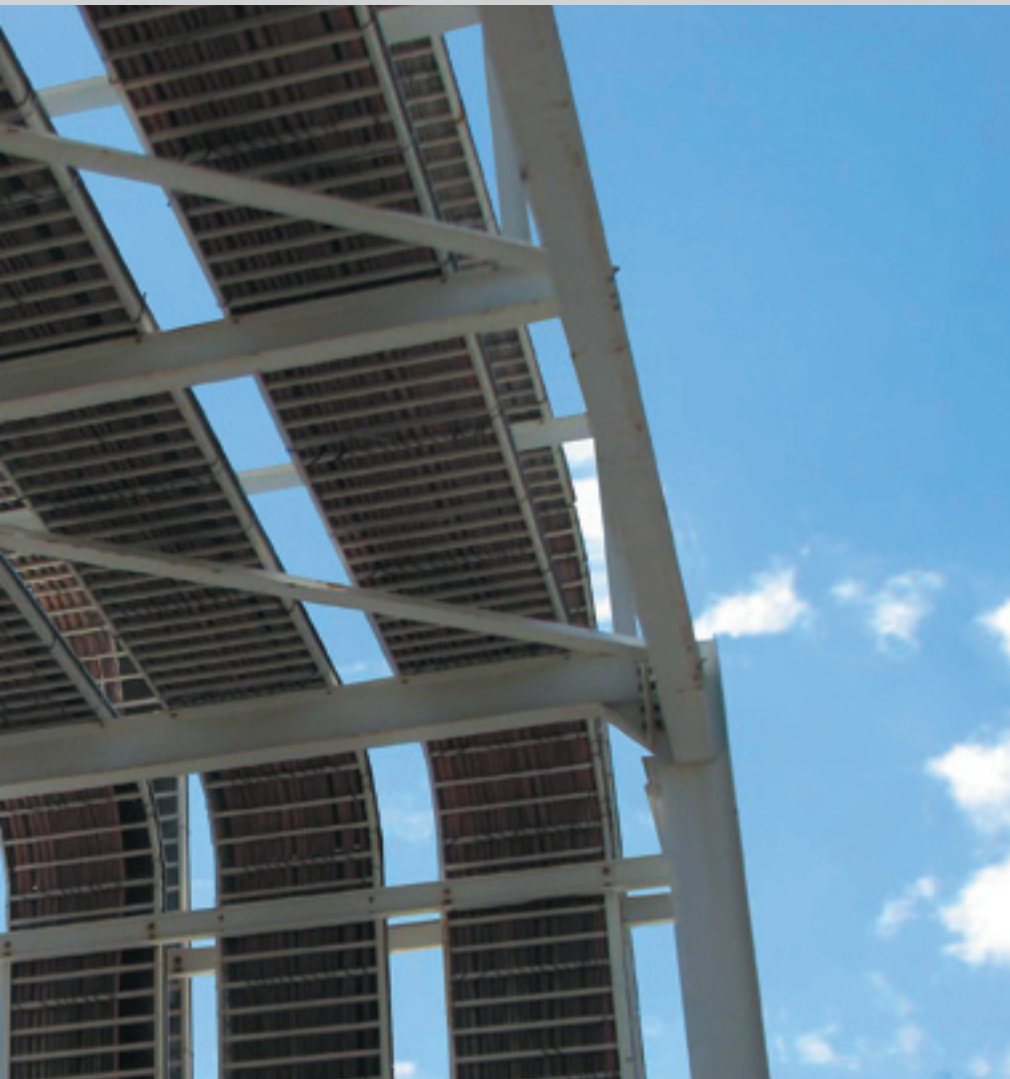
Lower quality systems may use only unidirectional strand glass, which can set up a weakness in the transverse direction or even short strand glass in a press moulding rather than a pultrusion.

The composite is covered with a surface veil to protect against the effects of weathering and is fully protected against UV.

Additional additives are included in the resin mix to provide mechanical protection for cut ends, slots and holes.

Cable ladder rungs are constructed using corrosion resistant nuts, bolts and lock washers to ensure maximum mechanical strength. Unlike a resin glued system, the rungs will be unaffected by aggressive chemicals or high stresses in the vertical plane.

All environments GRP range



The benefits of pultruded GRP

Whilst simpler GRP manufacturing processes exist, no other procedure offers the ideal combination of properties for cable management like the pultrusion manufacturing process; high load bearing, corrosion resistance, and fire and weathering resistance.

Only the pultruded GRP manufacturing processes offers the structural strength and rigidity required for cable support systems. Pultrusion creates a material of consistently high density, which offers the very best protection against weathering. Pultruded composites remain largely impervious to corrosion regardless of application.

Pultruded composites consist of four or, in some instances, five main elements:

1. **Glass rovings (strands) and mats** - approximately 50% by weight.
2. **Resin** - usually polyester.
3. **Filler** - usually calcium carbonate.
4. **UV veil and UV additives.**
5. **Fire retardants**, as required.

Material

Clipsal GRP cable support products are manufactured from polyester isothalic resin. This material displays a good combination of corrosion and fire resistance.

An optional modar resin is available to special order for areas where the following properties are required:

- Improved fire resistance
- Zero halogen and reduced smoke.

All materials can also be supplied in options that provide anti-static properties if required.

Maintenance

As protection against weathering, the products contain UV stabilisers and surface veils, ensuring a long maintenance-free life.

Strength

GRP provides a higher tensile strength-to-weight ratio than equivalent steel products and does not permanently deform under heavy loads.

Thermal conductivity

The low thermal conductivity of GRP means the effects of fire are localised. GRP retains its integrity in situations where many metallic materials have degraded.

GRP can also be effectively used in a wide temperature range from -140°C to $+120^{\circ}\text{C}$.

GRP Cable Tray and Strut Channel

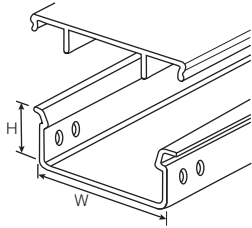
GRP Cable Tray

GS Tray - Slotted base

For areas where extreme corrosion resistance, zero halogen properties or hygiene is the overriding factor.

Clip-on cover
(sold separately)

Slotted base



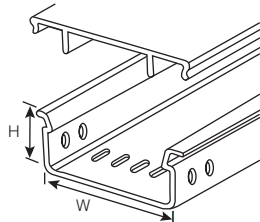
Cat. Number	Width (mm)	Height (mm)	Weight per length (kg)
MDECTGSP100-6	100	60	3.9
MDECTGSP150-6	150	60	4.5
MDECTGSP200-6	200	60	5.8
MDECTGSP300-6	300	60	8.0

NOTE: Available 400mm, 500mm and 600mm MTO minimum quantities.

GR Tray - Solid base

Clip-on cover
(sold separately)

Solid base

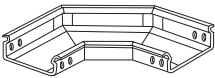


Cat. Number	Width (mm)	Height (mm)	Weight per length (kg)
MDECTGRP100-6	100	60	3.9
MDECTGRP150-6	150	60	4.5
MDECTGRP200-6	200	60	5.8
MDECTGRP300-6	300	60	8.0

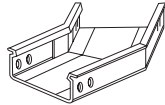
Accessories

Bends

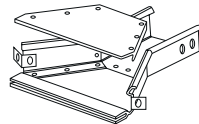
90° Flat Bend



45° Flat Bend

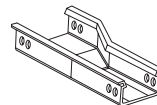


Tee/Cross Unit

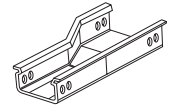


Reducers

Left Hand Reducer

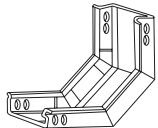


Right Hand Reducer

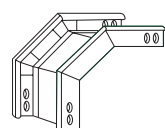


Risers

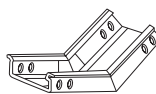
90° Internal Riser



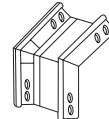
90° External Riser



45° Internal Riser



45° External Riser

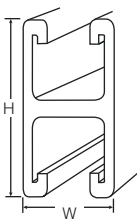
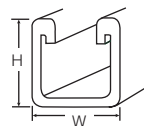
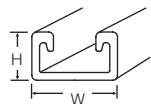


GRP Heavy Duty Strut Channel

MDE40018256

MDEGS1STRUT

MDE40018257

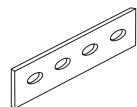


Cat. Number	Width (mm)	Height (mm)	Weight per length (kg)
MDEGS1STRUT	44	41	6.56kg
MDE40018256	44	25	4.98kg
MDE40018257	44	82	14.01kg

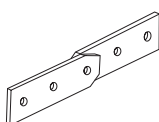
NOTE: Sold in 6m standard lengths.

Stainless Steel Accessories

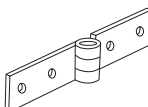
Straight Coupler



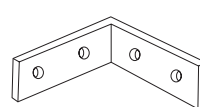
Hinged Coupler



Variable Angle Coupler

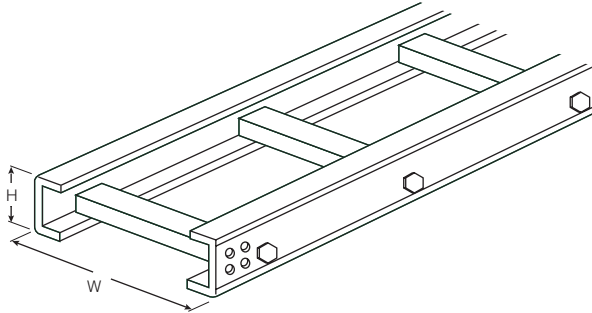


Horizontal Angle Coupler 90°



GRP Cable Ladder and Support

GRP Cable Ladder



L Series

Light Duty:
supports less
than 75kg/m
U.D. Load.

* Made to order

Cat. Number	Width (mm)	Height (mm)
MDECLLDL15083	150	83
MDECLLDL20083	200	83
MDECLLDL30083	300	83
MDECLLDL40083	400	83
MDECLLDL45083	450	83
MDECLLDL60083	600	83
MDECLLDL75083*	750	83
MDECLLDL90083*	900	83

A Series - NEMA 20A

Cat. Number	Width (mm)	Height (mm)
MDECLGML150100	150	100
MDECLGML200100	200	100
MDECLGML300100	300	100
MDECLGML400100	400	100
MDECLGML450100	450	100
MDECLGML600100	600	100
MDECLGML750100*	750	100
MDECLGML900100*	900	100

B Series - NEMA 20B

Cat. Number	Width (mm)	Height (mm)
MDECLGNL150150	150	150
MDECLGNL200150	200	150
MDECLGNL300150	300	150
MDECLGNL400150	400	150
MDECLGNL450150	450	150
MDECLGNL600150	600	150
MDECLGNL750150*	750	150
MDECLGNL900150*	900	150

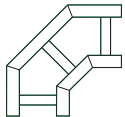
C Series - NEMA 20C

Cat. Number	Width (mm)	Height (mm)
MDECLGHL150150	150	150
MDECLGHL200150	200	150
MDECLGHL300150	300	150
MDECLGHL400150	400	150
MDECLGHL450150	450	150
MDECLGHL600150	600	150
MDECLGHL750150*	750	150
MDECLGHL900150*	900	150

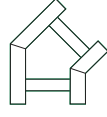
Accessories

Bends

90° Flat Bend

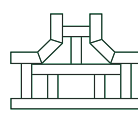


45° Flat Bend

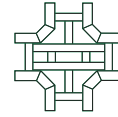


Tee/Cross Units

Equal Tee

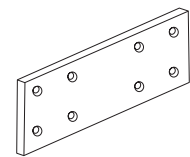


Equal Cross



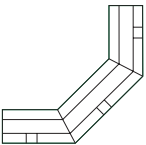
Coupling Kit

Coupling Plates
and Fasteners

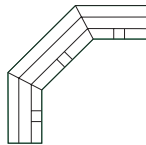


Risers

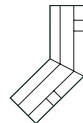
90° Internal Riser



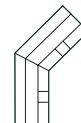
90° External Riser



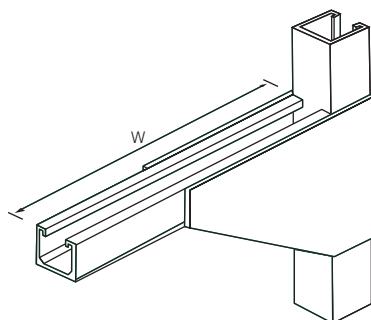
45° Internal Riser



45° External Riser



Heavy Duty Cantilever Arm Support



Cat. Number	Width (mm)	Weight (kg)	U.D. Load (kgf)
MDECLCAGSCAH015	180	1.09	227
MDECLCAGSCAH020	230	1.22	229
MDECLCAGSCAH025	280	1.35	196
MDECLCAGSCAH030	330	1.47	171
MDECLCAGSCAH035	380	1.60	151
MDECLCAGSCAH040	430	1.73	136
MDECLCAGSCAH045	480	1.85	124
MDECLCAGSCAH050	530	1.98	113
MDECLCAGSCAH055	580	2.11	104
MDECLCAGSCAH060	630	2.23	97
MDECLCAGSCAH065	680	2.36	90
MDECLCAGSCAH075	780	2.62	79
MDECLCAGSCAH080	830	2.74	75
MDECLCAGSCAH090	930	3.00	67
MDECLCAGSCAH095	980	3.13	64
MDECLCAGSCAH100	1030	3.25	61

GRP cable support products **characteristics**

Mechanical specifications

Isothalic thermoset polyester resin with unidirectional 'E' glass core, sandwiched between inner and outer layers of 450 gms/sq m 'E' glass continuous filament material.

All surfaces covered with polyester veil to provide chemical and UV protection.

Flame-retardant, halogen-free GRP

GRP is a non-halogenated resin and includes flame retardant additives. GRP does not contain any chlorine or bromine. No toxic halogens are released at high temperatures or in the case of a fire.

Ideal for use in the food and petrochemical industries.

Resistance to chemical agents

Chemical agent	Concentration	Temp°C	Resistance
Acetic Acid	5%	65	+
Aluminium Sulphate		95	+
Ammonium Nitrate	100%	95	+
Beer		20	+
Benzene		20	+
Calcium Chloride		95	+
Chlorine Gas/Water		20	+
Chromic Acid	5%	95	+
Copper Sulphate		95	+
Ethylene Chlorohydrin		65	+
Ethylene Glycol		95	+
Ferrous Sulphate		95	+
Fatty Acids	100%	95	+
Hydrochloric Acid	1%	95	+
Hydrochloric Acid	10%	65	+
Hydrochloric Acid	37%	25	+
Kerosene		95	+
Magnesium Chloride		95	+
Napthaline		95	+
Nitric Acid	30%	20	+
Phosphoric Acid	10%	95	+
Phosphoric Acid	10%	95	+
Phosphoric Acid	85%	65	+
Salt Water		65	+
Sodium Bicarbonate		65	+
Sodium Bisulphate		25	+
Sodium Carbonate		25	+
Sodium Chloride		95	+
Sodium Hypochlorite	5%	65	+
Sodium Nitrate	100%	95	+
Sodium Silicate		25	+
Sodium Sulphate		95	+
Sulphuric Acid	1%	95	+
Sulphuric Acid	5%	65	+
Sulphuric Acid	10%	76	+
Sulphuric Acid	30%	25	+
Trisodium Phosphate		25	+
Water Sea/Tap	100%	50	+
Zinc Sulphate		65	+

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