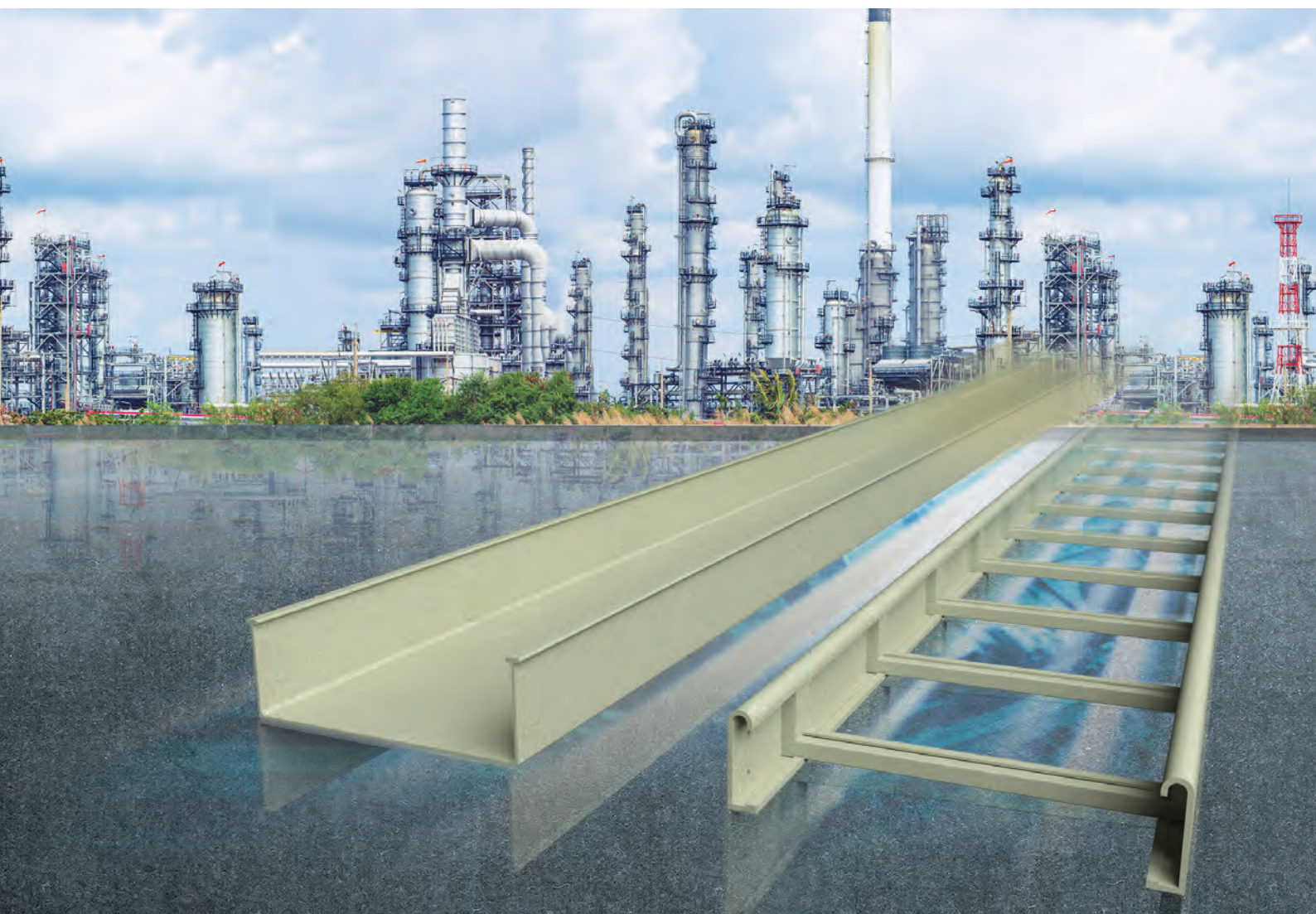




E-LINE KCA-CTA GRP

Cable Management System - Glass Reinforced Polyester

EAE GROUP IN NUMBERS



Since 1973

EAE Group of Companies started its journey in the electrical sector in 1973 with the establishment of EAE Elektrik. Since its founding, EAE has grown rapidly, expanding its production and areas of operation by incorporating EAE Lighting in 1983, EAE Machinery in 1996, EAE Electrotechnics in 2004, and EAE Technology in 2009.

EAE carries out its production activities in accordance with ISO 9001 Quality Management, ISO 14001 Environmental Management, ISO 14064-1 Greenhouse Gas Management System, ISO 45001 Occupational Health and Safety Management, ISO 10002 Customer Satisfaction Management, ISO 50001 Energy Management System, and ISO 27001 Information Security Management System standards.



50+
Years Experience



7
Active Factories



360.000m²
Enclosed Space



3
R&D Centers



150+
Countries Exported To

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E-LINE CTA GRP

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E-LINE KCA GRP

Introduction

Advantages of E-LINE GRP



Engineers, designers, contractors, installers and end users have many reasons to choose E-LINE GRP cable tray for their power, signal and control distribution support requirements. E-LINE GRP pultrude cable ladder system is well adapted to extremely harsh chemical environments where high-corrosion resistance is required. Glass Reinforced Polyester material as standard and exhibits below-mentioned performance characteristics.

Self-extinguishing
UV resistance
Halogen-free
No need to earth
Without toxic fumes

High Chemical Resistance

Chemically resistance for severely corrosive environments. Life-cycle cost is dramatically reduced by the extended life expectancy of this product.

High Weather Resistance

GRP is extremely resistant to low temperatures and exhibits well performance even in harsh climates.

High Mechanical Resistance

Pultruded profiles have been classified and approved NEMA 12°C and NEMA 20°C classification. Pultruded profiles can be supported up to 6M span, which reduce both the number of supports used.

Light-Weight

High strength-to-weight ratio as compared to metallic systems. Density is around. 1,75 gr/cm³ and 40% lighter than conventional metallic systems.

Low-Maintenance Cost

Continuous maintenance and cleaning are eliminated and cost effective-long term solution is provided.

High Dielectric Strength / Insulating

Low electrical conductivity properties and high dielectric strength. Conductivity can be increased upon request by enhancing anti-static properties.

Quick & Easy Installation

E-LINE GRP cable tray is strong and lightweight, allowing durable system to be installed quickly and easily

Secure for Cables

There are no sharp edges or burrs, long runs of armored cable can be installed with less chance for cable damage. Cable bundles can be laid in the tray from either side.

Wide Range of Products

- Available heights: 100 mm, 150 mm
- Available widths: 150 mm, 200 mm, 300 mm, 400 mm, 450 mm, 500 mm, 600 mm, 750 mm, 900 mm
- Rung spacing: 300 mm
- Straight Lengths: 3 Meters / 6 Meters
- Fitting radius: R300-R450-R600
- Covers
- Joint and fixing accessories

Application Areas

- Heavy Industry
- Oil and Gas Industry
- Power Plants
- Wastewater Treatment Plants
- Mining Industry
- Chemical Plants
- Railways and Tunnels
- Bridges
- Automotive, Iron and Steel, Glass Industry
- Ships and Ports
- Factories
- Airports
- Data Centers



Reasons for Choosing Composite

- Corrosion resistance
- Extremely lightweight
- Excellent fire performance
- Outstanding load capacity
- Insulating
- Long-life span
- UV resistance
- Fast and easy installation
- Low labor costs
- Low transportation costs

Extreme Load Capacity

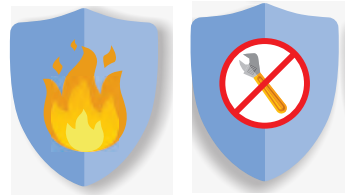
- 149 kg/m at 3,6 m single span (NEMA 12C) for H100
- 149 kg/m at 6,0 m single span (NEMA 20C) for H150

Standard Delivered Dimensions

- ↔ 150-200-3000-400-450-500-600-750-900 mm as standard
- ↑ 100 mm and 150 mm heights as standard
- 3M and 6M length as standard

Reasons for Choosing Composite

- Under fire conditions
- Non-flammable material (Class I – ASTM E84)
- Self-extinguishing (UL 94 "V0" Classified)
- No toxic fumes
- Zero halogen
- Low flame spread index
- Low smoke density



Insulating

- Extremely insulating material (>7kV/m)
- No need to earth

Maintenance Free

- No corrosion
- No electrolytic corrosion
- No need for painting and protective varnishes

EAE ELEKTRIK has carried out third party laboratory tests on all range of KCA GRP products. Details and results of the test is published and could be seen below. Please contact us for more support about test requirements.

UL 94 V-0 / (ASTM D-635) UL 94 V-0 / (ASTM D-635): Flammability Test

Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances:

That is a standard test method for measuring the rate of burning and duration of burning in plastic products. Our KCA GRP material self-extinguished within 10 seconds which means product achieved UL94 V-0 certification.

IEC 60695-2: Glow Wire Test

Glowing/hot-wire based test methods-Glow-wire flammability test method for end-products (GWEPT):

The sample is intended to simulate effects of thermal stress produced by an electrically heated source to represent a fire hazard. Our material achieved to resist a hot with 950 oC which is the highest possible value.

BS 476 Part-7: Surface Flammability

Standard Flammability Testing Equipment Surface Flame Spread Apparatus

This is a vertical flame spread test. Sample material is exposed to a high intensity flame for a predetermined amount of time. The heat source is then removed, and the test begins, after 10 minutes the flame spread, and rate is measured. Our resin system achieved the highest level possible.

ASTM E84: Surface Burning Characteristics

Standard Test Method for Surface Burning Characteristics of Building Materials:

Tests determine the rate of flame spread and smoke emission index of materials. The material is placed in a test box with a gas burner at one end and a smoke measurement device at the exhaust end. Our KCA GRP material achieved the highest level of certification in this test. Class-1.

ISO 4589-2: LIMITING OXYGEN INDEX

Determination of burning behavior by oxygen index:

specifies methods for determining the minimum volume fraction of oxygen, in admixture with nitrogen, that will support combustion of small vertical test specimens under specified test conditions. The results are defined as oxygen index (OI) values. Our KCA GRP system has achieved 23% (OI)

DIN 4102-1: Fire behavior of Building Elements

Fire behavior of building materials and elements Part 1: Classification of building materials requirements and testing

A test specimen is hung vertically in a test cabinet with a burner in it. It is subjected simultaneously to a flame for 10 minutes and a constant flow of air from below. The temperature of the smoke and the undamaged length of the specimen are measured.

IEC 60754-1: HALOGEN-FREE

Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content

Specifies the apparatus and procedure for the determination of the amount of halogen acid gas, The method specified in this standard is intended for the testing of individual components used in a cable construction. A simple test that ensures the material has zero halogen content. Halogens are a toxic group of elements that are sometimes used as flame retardants. All our products are halogen free.

ISO 527: TENSILE TEST

Tensile Strength and Elastic Modulus Testing:

The methods are used to investigate the tensile behavior of the test specimens and for determining the tensile strength, tensile modulus and other aspects of the tensile stress/strain relationship under the conditions defined. EAE KCA GRP Cable ladder has 325 MPa tensile strength.

EN 60068-2-75: IMPACT TEST

Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests

It is used to demonstrate an acceptable level of robustness when assessing the safety of a product and is primarily intended for the testing of electrotechnical items. EAE KCA GRP Cable ladder is classified 10J impact resistance.

ISO 4892-2: UV TEST

Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps

ISO 4892-2:2013 specifies methods for exposing specimens to xenon-arc light in the presence of moisture to reproduce the weathering effects (temperature, humidity and/or wetting) that occur when materials are exposed in actual end-use environments to daylight or to daylight filtered through window glass.

NEMA FG-1: Single-Span Load Test

According to single-span, single-straight product load test, EAE KCA GRP Cable Ladder straight lengths are classified 12C and 20C.

IEC 61537: Multi-span Load Test

According to multi-span, spliced two straight product load tests, load capacity vs. span is drawn and could be seen on related straight length catalog pages.

IEC 60079-0 / (ASTM D-257): Surface resistivity (Anti-static property)

Explosive atmospheres - Part 0: Equipment - General requirements

specifies the general requirements for construction, testing and marking of Ex Equipment and Ex Components intended for use in explosive atmospheres. EAE KCA GRP Cable ladder is highly insulating material that has $>10^{12}$ ohm, which can be enhanced to $<10^8$ ohm with additional carbon filler.

IEC 60243-1/ (ASTM D-149): Dielectric Strength

Electrical strength of insulating materials – Test methods Part 1: Test at power frequencies

provides test methods for the determination of short-time electric strength of solid insulating materials. EAE KCA GRP Cable ladder has 7,2 kV/mm dielectric strength with 39 kV breaking voltage which is satisfied result.

IEC 60112: Proof Tracking Index

Method for the determination of the proof and the comparative tracking indices of solid insulating materials

provides test methods for the determination of short-time electric strength of solid insulating materials. EAE KCA GRP Cable ladder has 7,2 kV/mm dielectric strength with 39 kV breaking voltage which is satisfied result.

E-LINE KCA GRP

Introduction

Material Technical Datasheet (Glass Reinforced Polyester)



E-Line KCA GRP Glass Reinforced Polyester Cable Ladder systems are manufactured from glass reinforced polyester shapes that meet ASTM E-84 / UL 723, Class 1 Flame Rating and self-extinguishing requirements of ASTM D-635/ UL 94 V0. A surface veil is applied during pultrusion to insure a resin-rich surface and ultraviolet resistance. The cable trays and accessories comply with the requirements of latest revision of following standards.

TECHNICAL DATA SHEET / POLYESTER RESIN / HALOGEN-FREE / RAL 7032

PROPERTIES	TEST METHOD	RESULT / VALUE	COUNTRY
Fire Behaviour			
Flammability	UL 94 / (ASTM D-635)	UL 94 - V0	TR
Flammability	IEC 60695-2-11 (GWT: Glow Wire test)	960 °C	TR/FR
Flammability & Smoke Index	NF F 16-101	IO / F0 (Dm: 239 / VOF4: 30) (accord. NF X 10-702) (ITC: 2.18) (accord. NF X 70-100)	FR
Flame Spread & Smoke developed index	ASTM E-84 / UL 723	Class-1 (FSI Flame Spread Index:15) (SD: Smoke Density:250)	TR
Flammability	BS 476 Part-7	Class-1	TR
Fire Behavior	DIN 4102-1	B1	TR
Halogen Content	IEC 60754-1	Halogen-free	TR
Limiting Oxygen Index	ISO 4589-2 / (ASTM D-2863)	28% (>45% upon request)	TR/FR
Fire Behavior	EN 45545-2 Fire Behavior of Railway vehicles, Number: R6 ISO 5660-1: Parameter MARHE EN ISO 5659-2: Parameter DS (4) EN ISO 5659-2: Parameter VOF4 EN ISO 5659-2: Parameter CITG	42,97 116,48 172,91 0,79	TR
Mechanical Behaviour			
Tensile Strength	ISO 527 / (ASTM D-638)	325 Mpa	TR
Accelerated Aging Test by UV exposure	ISO 4892-2 / (ASTM G-154)	Good mechanical and chromatic behavior	TR
Impact Resistance	EN 60068-2-75	10 J	TR
Load Capacity	NEMA FG-1	12C (149 kg/m on 3,6 Meters span) 20C (149 kg/m on 6,0 Meters span)	TR
Electrical Behaviour			
Surface Resistivity		>1012Ω(<109 Ω GRP with anti-static properties)	TR
Dielectric Strength (Breaking Voltage)		7,2 kV/mm	TR
Proof Tracking Index		575V	TR
Physical Behaviour			
Density	ISO 1183 / (ASTM D-1505)	1,73gr/cm3	TR
Water Absorption	ISO 62 / (ASTM D-570)	0,28% max.	TR
Coefficient of Thermal Expansion	ISO 11359-2 / (ASTM D-696)	10 x 10-6cm/K	TR



E-LINE KCA GRP

Introduction

GRP Typical Coupon Properties



Coupon tests are performed in accordance with designed ASTM Tests.

Mechanical Properties	ASTM	UNITS	VALUE (PE)	UNITS	VALUE
Tensile Strength, LW	D-638	psi	30,000	Mpa	206
Tensile Strength, CW	D-638	psi	7,000	MPa	48
Tensile Modulus, LW	D-638	106 psi	2.5	GPa	17
Tensile Modulus, CW	D-638	106 psi	0.8	GPa	5
Compressive Strength, LW	D-695	psi	30,000	MPa	206
Compressive Strength, CW	D-695	psi	15,000	MPa	103
Compressive Modulus, LW	D-695	106 psi	2.5	GPa	17
Compressive Modulus, CW	D-695	106 psi	1.0	GPa	0.6
Flexural Strength, LW	D-790	psi	30,000	MPa	206
Flexural Strength, CW	D-790	psi	10,000	MPa	102
Flexural Modulus, LW	D-790	106 psi	1.8	GPa	11
Flexural Modulus, CW	D-790	106 psi	0.8	GPa	5
Modulus of Elasticity, E	Full Section	106 psi	2.8	Gpa	17
Shear Modulus	-----	106 psi	0.450		
Short Beam Shear	D-2344	psi	4,500		
Punch Shear	D-732	psi	10,000		
Bearing Strength, LW	D-953	psi	30,000		
Notched Izod Impact, LW	D-256	ft-lbs./in	25		
Notched Izod Impact, CW	D-256	ft-lbs./in	4		
Mechanical Properties	ASTM	UNITS	VALUE (PE)	UNITS	VALUE
Physical Properties	ASTM	UNITS	VALUE (PE)		
Barcol Hardness	D-2583	-----	45		
24 Hour Water Absorption	D-570	% max	0.45		
Density	D-792	lbs./in 3	.062-0.70		
Coefficient of Thermal Expansion, LW	D-696	10-6 in/in/°C	8		
Mechanical Properties	ASTM	UNITS	VALUE (PE)	UNITS	VALUE
Arc Resistance, LW	D-495	seconds	120		
Dielectric Strength, LW	D-149	kV/in	35		
Dielectric Strength, PF	D-149	volts/mil	200		
Dielectric Constant, PF	D-150	@60hz	5		

LW = Lengthwise

CW = Crosswise

PF = Perpendicular to Laminate Face

E-LINE KCA GRP

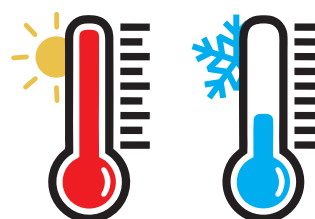
Introduction

Effect Of Temperature On Strength



Strength properties of GRP products are reduced when continuously exposed to elevated temperatures. Working loads shall be reduced based on the following:

Temperature		Polyester Resin % of Strength	Vinyl Ester % of Strength
(°F)	(°C)		
75	24	100 %	100 %
100	38	90 %	100 %
125	52	78 %	100 %
150	65	68 %	90 %
175	79	60 %	90 %
200	94	52 %	70 %



- At temperatures below 24 °C, the load values specified at 24 °C can be used.
- The maximum operating temperature is 94 °C.

Thermal Expansion & Contraction

Temperature Differential		Max. distance between expansion connector For 1 in. (25mm) expansion	
(°F)	(°C)	(feet)	meters
25	14	667	203
50	28	333	101
75	42	222	67
100	56	167	50
125	70	133	40
150	83	111	33
175	97	95	28

Chemical Resistance Table

Chemical Environment	Polyester		Vinyl Ester	
	Max. Wt. %	Max. Oper. Temp. F (°C)	Max. Wt. %	Max. Oper. Temp. F (°C)
Acetic Acid	10	190 (88)	10	210 (99)
Acetic Acid	50	125 (52)	50	180 (82)
Acetone	N/R	N/R	100	75 (24)
Aluminum Chloride	SAT	170 (77)	SAT	200 (93)
Aluminum Hydroxide	SAT	160 (71)	SAT	170 (77)
Aluminum Nitrate	SAT	150 (66)	SAT	170 (77)
Aluminum Sulfate	SAT	180 (82)	SAT	200 (93)
Ammonium Chloride	SAT	170 (77)	SAT	190 (88)
Ammonium Hydroxide	1	100 (38)	10	150 (66)
Ammonium Hydroxide	28	N/R	28	100 (38)
Ammonium Carbonate	N/R	N/R	SAT	150 (66)
Ammonium Bicarbonate	15	125 (52)	SAT	130 (54)
Ammonium Nitrate	SAT	160 (71)	SAT	190 (88)
Ammonium Persulfate	SAT	N/R	SAT	150 (66)
Ammonium Sulfate	SAT	170 (77)	SAT	200 (93)
Amyl Alcohol	ALL	N/R	ALL	90 (32)
Amyl Alcohol Vapor	-	140 (60)	-	120 (49)
Benzene	N/R	N/R	100	140 (60)
Benzene Sulfonic Acid	25	110 (43)	SAT	200 (93)
Benzoic Acid	SAT	150 (66)	SAT	200 (93)
Benzoyl Alcohol	100	N/R	100	N/R
Borax	SAT	170 (77)	SAT	200 (93)
Calcium Carbonate	SAT	170 (77)	SAT	200 (93)
Calcium Chloride	SAT	170 (77)	SAT	200 (93)
Calcium Hydroxide	25	70 (21)	25	165 (74)
Calcium Nitrate	SAT	180 (82)	SAT	200 (93)
Calcium Sulfate	SAT	180 (82)	SAT	200 (93)
Carbon Disulfide	N/R	N/R	N/R	N/R
Carbonic Acid	SAT	130 (54)	SAT	180 (82)
Carbon Dioxide Gas	-	200 (93)	-	200 (93)
Carbon Monoxide Gas	-	200 (93)	-	200 (93)
Carbon Tetrachloride	N/R	N/R	100	75 (24)
Chlorine, Dry Gas	-	140 (60)	-	170 (77)
Chlorine, Wet Gas	-	N/R	-	180 (82)
Chlorine Water	SAT	80 (27)	SAT	180 (82)
Chromic Acid	5	70 (21)	10	120 (49)
Citric Acid	SAT	170 (77)	SAT	200 (93)
Copper Chloride	SAT	170 (77)	SAT	200 (93)
Copper Nitrate	SAT	170 (77)	SAT	200 (93)

Chemical Environment	Polyester		Vinyl Ester	
	Max. Wt. %	Max. Oper. Temp. F (°C)	Max. Wt. %	Max. Oper. Temp. F (°C)
Crude Oil, Sour	100	170 (77)	100	200 (93)
Cyclohexane	N/R	N/R	N/R	N/R
Cyclohexane, Vapor	ALL	100 (38)	ALL	130 (54)
Diesel Fuel	100	160 (71)	100	180 (82)
Diethyl Ether	N/R	N/R	N/R	N/R
Dimethyl Phthalate	N/R	N/R	N/R	N/R
Ethanol	50	75 (24)	50	90 (32)
Ethyl Acetate	N/R	N/R	N/R	N/R
Ethylene Chloride	N/R	N/R	N/R	N/R
Ethylene Glycol	100	90 (32)	100	200 (93)
Fatty Acids	SAT	180 (82)	SAT	200 (93)
Ferric Chloride	SAT	170 (77)	SAT	200 (93)
Ferric Nitrate	SAT	170 (77)	SAT	200 (93)
Ferric Sulfate	SAT	170 (77)	SAT	200 (93)
Ferrous Chloride	SAT	170 (77)	SAT	200 (93)
Fluoboric Acid	N/R	N/R	SAT	165 (74)
Fluosilicic Acid	N/R	N/R	SAT	70 (21)
Formaldehyde	50	75 (24)	50	100 (38)
Formic Acid	N/R	N/R	50	100 (38)
Gasoline	100	80 (27)	100	150 (66)
Glucose	100	170 (77)	100	200 (93)
Glycerine	100	150 (66)	100	200 (93)
Heptane	100	110 (43)	100	200 (93)
Hexane	100	90 (32)	100	130 (54)
Hydrobromic Acid	50	120 (49)	50	120 (49)
Hydrochloric Acid	10	150 (66)	10	200 (93)
Hydrochloric Acid	20	140 (60)	20	190 (88)
Hydrochloric Acid	37	75 (24)	37	95 (35)
Hydrochloric Acid	N/R	N/R	15	80 (27)
Hydrogen Bromide, Dry	100	190 (88)	100	200 (93)
Hydrogen Bromide, Wet	100	75 (24)	100	130 (54)
Hydrogen Chloride	-	120 (49)	-	200 (93)
Hydrogen Peroxide	5	100 (38)	30	100 (38)
Hydrogen Sulfide, Dry	100	170 (77)	100	210 (99)
Hydrogen Sulfide, Wet	100	170 (77)	100	210 (99)
Hypochlorous Acid	20	80 (27)	20	150 (66)
Isopropyl Alcohol	N/R	N/R	15	80 (27)
Kerosene	100	140 (60)	100	80 (27)
Lactic Acid	SAT	170 (77)	SAT	200 (93)

SAT : Saturated

N / R : Not Recommended

Chemical Resistance Table

Chemical Environment	Polyester		Vinyl Ester	
	Max. Wt. %	Max. Oper. Temp. F (°C)	Max. Wt. %	Max. Oper. Temp. F (°C)
Lead Acetate	SAT	170 (77)	SAT	200 (93)
Lead Chloride	SAT	140 (60)	SAT	200 (93)
Lead Nitrate	SAT	-	SAT	200 (93)
Linseed Oil	100	150 (66)	100	190 (88)
Lithium Chloride	SAT	150 (66)	SAT	190 (88)
Magnesium Carbonate	SAT	140 (60)	SAT	170 (77)
Magnesium Chloride	SAT	170 (77)	SAT	200 (93)
Magnesium Hydroxide	SAT	150 (66)	SAT	190 (88)
Magnesium Nitrate	SAT	140 (60)	SAT	180 (82)
Magnesium Sulfate	SAT	170 (77)	SAT	190 (88)
Mercuric Chloride	SAT	150 (66)	SAT	190 (88)
Mercurous Chloride	SAT	140 (60)	SAT	180 (82)
Methyl Ethyl ketone	N/R	N/R	N/R	N/R
Mineral Oils	100	170 (77)	100	200 (93)
Monochlorobenzene	N/R	N/R	N/R	N/R
Naphtha	100	140 (60)	100	170 (77)
Nickel Chloride	SAT	170 (77)	SAT	200 (93)
Nickel Nitrate	SAT	170 (77)	SAT	200 (93)
Nickel Sulfate	SAT	170 (77)	SAT	200 (93)
Nitric Acid	5	140 (60)	5	150 (66)
Nitric Acid	20	70 (21)	20	100 (38)
Oleic Acid	100	170 (77)	100	90 (32)
Oxalic Acid	ALL	75 (24)	ALL	120 (49)
Paper Mill Liquors	-	100 (38)	-	120 (49)
Perchloroethylene	100	N/R	100	N/R
Perchloric Acid	N/R	N/R	10	150 (66)
Perchloric Acid	N/R	N/R	30	80 (27)
Phosphoric Acid	10	160 (71)	10	200 (93)
Phosphoric Acid	100	120 (49)	100	200 (93)
Potassium Alum. Sulfate	SAT	170 (77)	SAT	200 (93)
Potassium Bicarbonate	50	80 (27)	50	140 (60)
Potassium Bichromate	SAT	170 (77)	SAT	200 (93)
Potassium Carbonate	10	N/R	10	120 (49)
Potassium Chloride	SAT	170 (77)	SAT	200 (93)
Potassium Hydroxide	N/R	N/R	25	150 (66)
Potassium Nitrate	SAT	170 (77)	SAT	200 (93)
Potassium Permanganate	100	80 (27)	100	210 (99)
Potassium Sulfate	SAT	170 (77)	SAT	200 (93)
Propylene Glycol	ALL	170 (77)	ALL	200 (93)

Chemical Environment	Polyester		Vinyl Ester	
	Max. Wt. %	Max. Oper. Temp. F (°C)	Max. Wt. %	Max. Oper. Temp. F (°C)
Phthalic Acid	-	-	SAT	200 (93)
Sodium Acetate	SAT	160 (71)	SAT	200 (93)
Sodium Benzoate	SAT	170 (77)	SAT	200 (93)
Sodium Bicarbonate	SAT	160 (71)	SAT	175 (79)
Sodium Bisulfate	ALL	170 (77)	ALL	200 (93)
Sodium Bromide	ALL	170 (77)	ALL	200 (93)
Sodium Carbonate	10	80 (27)	35	160 (71)
Sodium Chloride	SAT	170 (77)	SAT	200 (93)
Sodium Cyanide	SAT	170 (77)	SAT	200 (93)
Sodium Hydroxide	N/R	N/R	50	150 (66)
Sodium Hydroxide	N/R	N/R	25	80 (27)
Sodium Hypochloride	N/R	N/R	10	150 (66)
Sodium Monophosphate	SAT	170 (77)	SAT	200 (93)
Sodium Nitrate	SAT	170 (77)	SAT	200 (93)
Sodium Sulfate	SAT	170 (77)	SAT	200 (93)
Sodium Thiosulfate	ALL	100 (38)	ALL	120 (49)
Stannic Chloride	SAT	160 (71)	SAT	190 (88)
Styrene	N/R	N/R	N/R	N/R
Sulfated Detergent	0/50	170 (77)	0/50	200 (93)
Sulfur Dioxide	100	80 (27)	100	200 (93)
Sulfur Trioxide	100	80 (27)	100	200 (93)
Sulfuric Acid	93	N/R	93	N/R
Sulfuric Acid	50	N/R	50	180 (82)
Sulfuric Acid	25	75 (24)	25	190 (88)
Sulfurous Acid	SAT	80 (27)	N/R	N/R
Tartaric Acid	SAT	170 (77)	SAT	200 (93)
Tetrachloroethylene	N/R	N/R	FUM	75 (24)
Toluene	N/R	N/R	N/R	N/R
Trisodium Phosphate	N/R	N/R	SAT	175 (79)
Urea	SAT	130 (54)	SAT	140 (60)
Vinegar	100	170 (77)	100	200 (93)
Water, Distilled	100	170 (77)	100	190 (88)
Water, Tap	100	170 (77)	100	190 (88)
Water, Sea	SAT	170 (77)	SAT	190 (88)
Xylene	N/R	N/R	N/R	N/R
Zinc Chloride	SAT	170 (77)	SAT	200 (93)
Zinc Nitrate	SAT	170 (77)	SAT	200 (93)
Zinc Sulfate	SAT	170 (77)	SAT	200 (93)

SAT : Saturated

N / R : Not Recommended

NEMA FG-1 is a standard originating from the USA/Canada that specifies the test method for non-metallic cable trays. A single-size product is supported by two supports spaced at a distance L , and a uniformly distributed load is applied until failure occurs. The load value at the point of failure is divided by a safety factor of 1.5, and the safe load-carrying capacity is declared in kg/m for that span distance. The product class is classified using the numbers and letters specified in the tables below.

Numeric refers to span distance in Imperial units;

- 8 ft. (2,4 meters)
- 10 ft. (3,0 meters)
- 12 ft. (3,6 meters)
- 16 ft. (4,8 meters)
- 20 ft. (6,0 meters)

Alphabetic scales refer to safe working load;

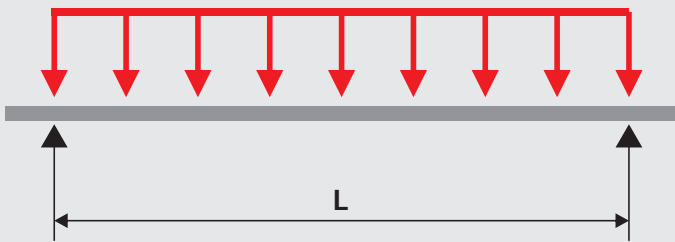
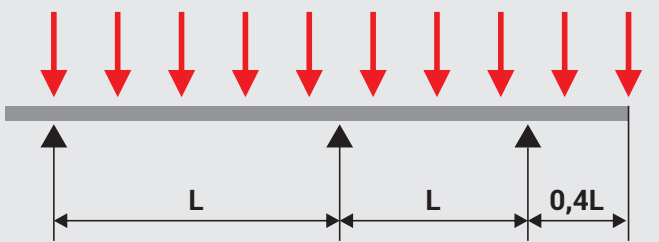
- A (75kg/m)
- B (111 kg/m)
- C (149 kg/m)

12°C: Safe working load of 149 kg/m with 3,6 meters support span

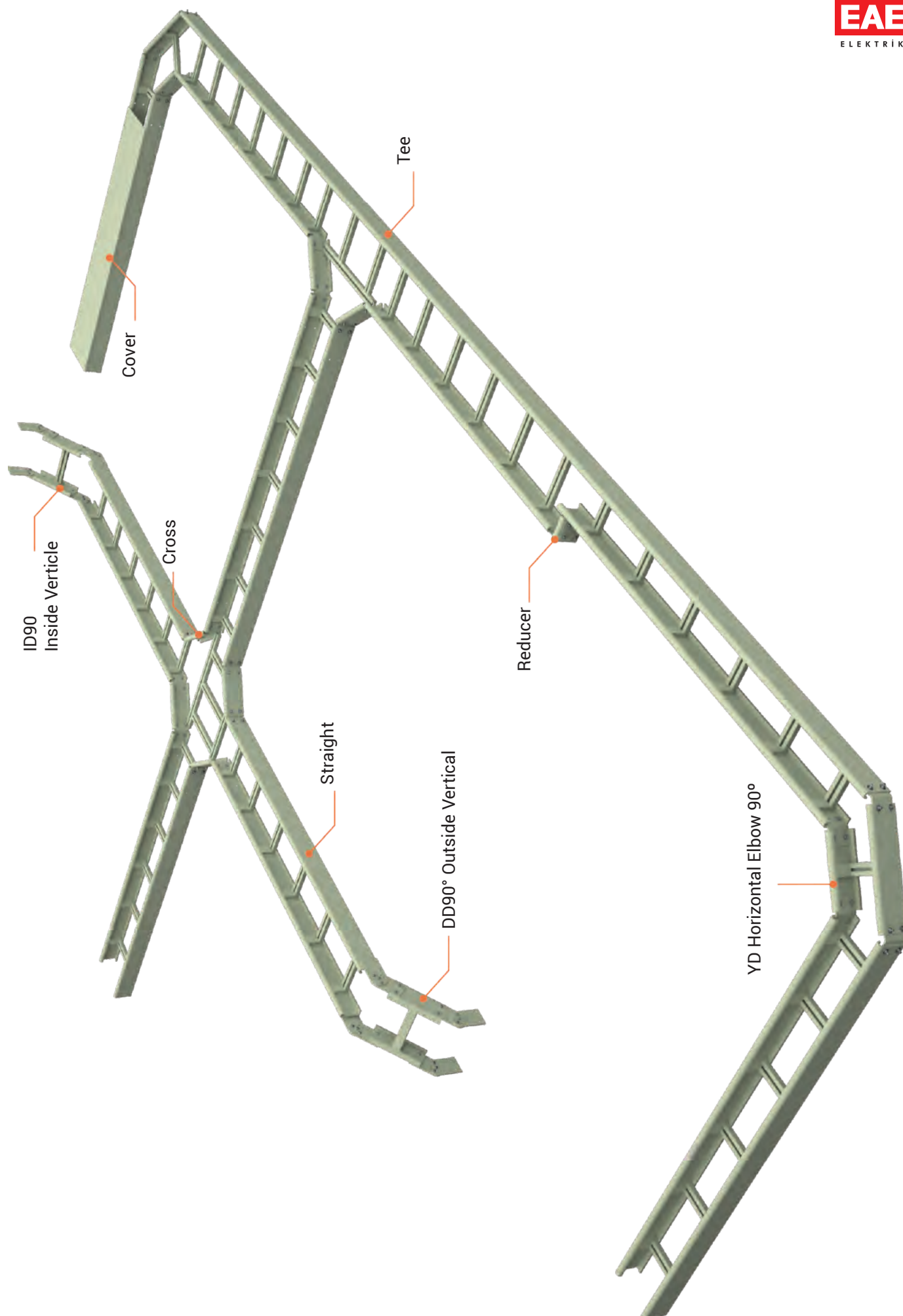
20°C: Safe working load of 149 kg/m with 6,0 meters support span

NEMA FG-1 SPAN/LOAD CLAS DESIGNATION - USA					
Load kg/m (lb./ft.)	Support Span				
	2,4m (8ft.)	2,4m (8ft.)	3,6m (12ft.)	4,8m (16ft.)	6,0m (20ft.)
74 (50)	8A	10A	12A	16A	20A
112 (75)	8B	10B	12B	16B	20B
149 (100)	8C	10C	12C	16C	20C

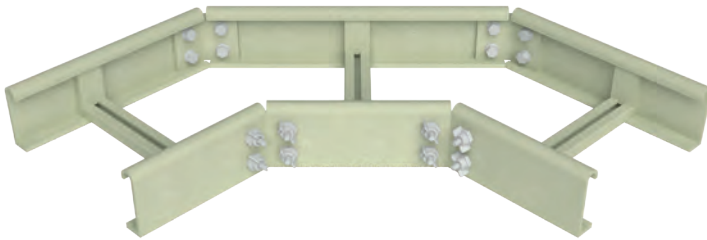
IEC 61537 is an international testing standard of non-metallic cable trays ladders. Two runs of Cable ladder are joint and lay on at least three supports with a distance L and unsupported cantilever span $0,4L$, then loaded until deflection limit $L/100$ reached. Loading is continued up to 1,7 safety factor. Then, the load capacity is noted as kg/m at tested support span.

NEMA FG-1	IEC 61537
	
• A single product is tested in a single span. • No joint components are used. • A uniformly distributed load is applied. • Loading until collapse • Safety factor: 1.5	• Multiple products are tested across multiple spans. • Joint components are used for connection. • A uniformly distributed load is applied. • Loading Until Deflection Limit (max. $L/100$). • Loading continues up to 1.7 times the limit. • Safety factor: 1.7

E-LINE KCA GRP



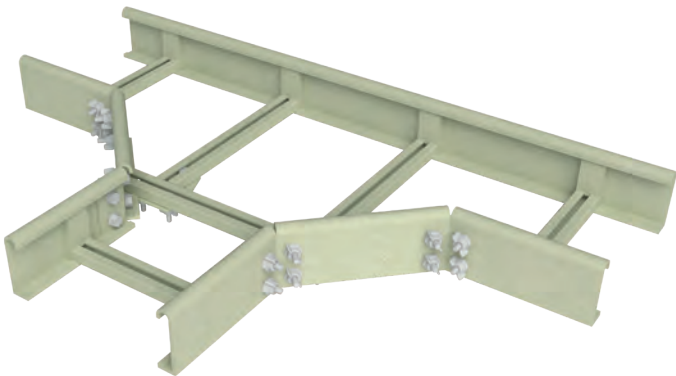
Horizontal Elbow 90°



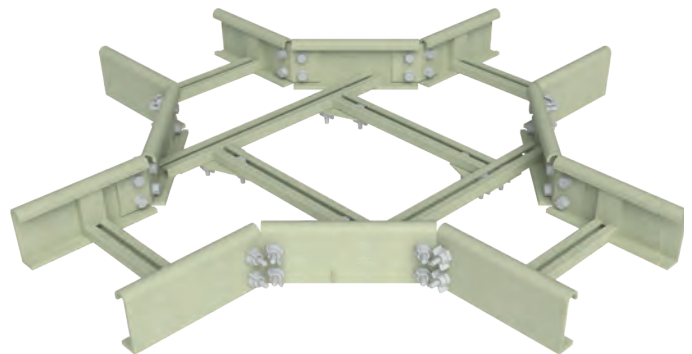
Straight



Tee



Cross



DD90° Vertical Outside Elbow



ID90° Vertical Inside Elbow



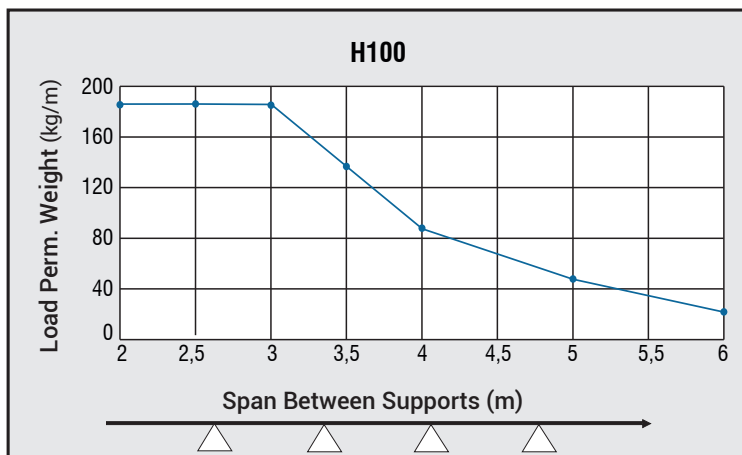
E-LINE KCA GRP

Straight

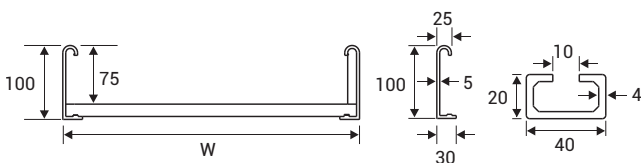
100 GRP NEMA 12C Series Glass Reinforced Polyester Cable Ladder



- Side Rail Height (H) : 100mm
- Widths (W) : 150mm, 200mm, 300mm, 400mm, 450mm, 500mm, 600mm, 750mm, 900mm
- Standard Rung Spacing : 300mm
- Standard Lengths (L) : 3 meters/6 meters



- Safe working load values are based on continues beam test according to IEC 61537 standard.
- Please refer to Page 10 for the effect of temperature on strength.



3m Length		6m Length		Height (mm)	Width (mm)	Thickness (mm)	Weight (kg/m)
Order Code	Description	Order Code	Description				
3177379	100 KCA GRP 150 / 3m	3203076	100 KCA GRP 150 / 6m	100	150	5	3,35
3177380	100 KCA GRP 200 / 3m	3203077	100 KCA GRP 200 / 6m	100	200	5	3,43
3177381	100 KCA GRP 300 / 3m	3203078	100 KCA GRP 300 / 6m	100	300	5	3,62
3177382	100 KCA GRP 400 / 3m	3203079	100 KCA GRP 400 / 6m	100	400	5	3,80
3177383	100 KCA GRP 450 / 3m	3203080	100 KCA GRP 450 / 6m	100	450	5	3,90
3177384	100 KCA GRP 500 / 3m	3203081	100 KCA GRP 500 / 6m	100	500	5	4,00
3177385	100 KCA GRP 600 / 3m	3203082	100 KCA GRP 600 / 6m	100	600	5	4,17
3177386	100 KCA GRP 750 / 3m	3203083	100 KCA GRP 750 / 6m	100	750	5	4,46
3177387	100 KCA GRP 900 / 3m	3203084	100 KCA GRP 900 / 6m	100	900	5	4,73

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Rung spacing : 300 mm as standard. (Others available upon request) :
- Connectors : GRP as standard. (SS 316 grade available upon request. Page-36-37)
- Fasteners : M10x25 SS316 Bolt Set or M10x40 GRP Bolt Set Overview

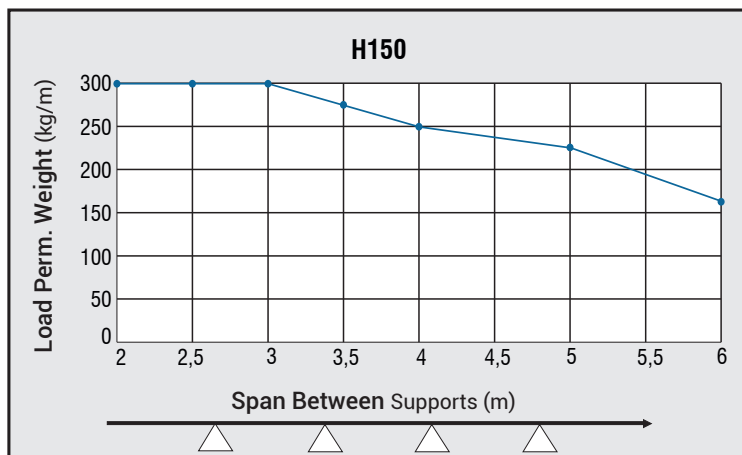
E-LINE KCA GRP

Straight

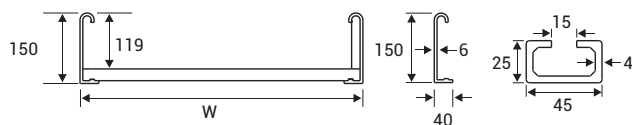
150 GRP NEMA 20C Series Glass Reinforced Polyester Cable Ladder



- Side Rail Height (H) : 150mm
- Widths (W) : 150mm, 200mm, 300mm, 400mm, 450mm, 500mm, 600mm, 750mm, 900mm
- Standard Rung Spacing : 300mm
- Standard Lengths (L) : 3 meters/6 meters



- Safe working load values are based on continues beam test according to IEC 61537 standard.
- Please refer to Page 10 for the effect of temperature on strength.



3m Length		6m Length		Height (mm)	Width (mm)	Thickness (mm)	Weight (kg/m)
Order Code	Description	Order Code	Description				
3177388	150 KCA GRP 150 / 3m	3203085	150 KCA GRP 150 / 6m	150	150	6	5,70
3177389	150 KCA GRP 200 / 3m	3203086	150 KCA GRP 200 / 6m	150	200	6	5,84
3177390	150 KCA GRP 300 / 3m	3203087	150 KCA GRP 300 / 6m	150	300	6	6,11
3177391	150 KCA GRP 400 / 3m	3203088	150 KCA GRP 400 / 6m	150	400	6	6,39
3177392	150 KCA GRP 450 / 3m	3203089	150 KCA GRP 450 / 6m	150	450	6	6,54
3177393	150 KCA GRP 500 / 3m	3203090	150 KCA GRP 500 / 6m	150	500	6	6,65
3177394	150 KCA GRP 600 / 3m	3203091	150 KCA GRP 600 / 6m	150	600	6	6,95
3177395	150 KCA GRP 750 / 3m	3203092	150 KCA GRP 750 / 6m	150	750	6	7,37
3177396	150 KCA GRP 900 / 3m	3203093	150 KCA GRP 900 / 6m	150	900	6	7,79

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Rung spacing : 300 mm as standard. (Others available upon request) :
- Connectors : GRP as standard. (SS 316 grade available upon request. Page-36-37)
- Fasteners : M10x25 SS316 Bolt Set or M10x40 GRP Bolt Set Overview

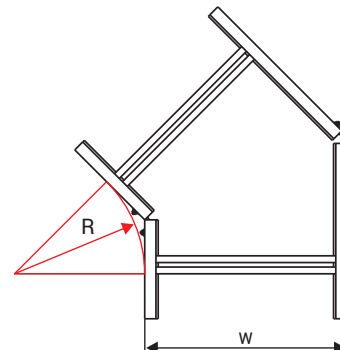
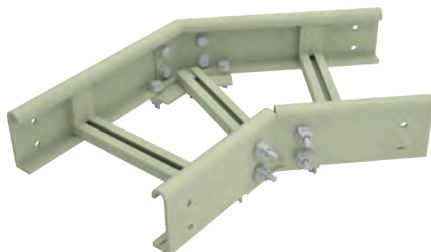
E-LINE KCA GRP

Fittings

YD45° Horizontal 45° Elbow (R300, R450, R600)



Produced by the pultrusion method. Shipped pre-assembled.



Width (mm)	Radius	Description	Order Code		Weight (kg/pcs)		Y (mm)
			↑100	↑150	↑100	↑150	
150	300	KCA GRP 150/YD45°/R300	3193237	3193264	1,98	3,45	495
	450	KCA GRP 150/YD45°/R450	3193246	3193273	2,35	4,08	525
	600	KCA GRP 150/YD45°/R600	3193255	3193282	2,99	5,19	740
200	300	KCA GRP 200/YD45°/R300	3193238	3193265	2,09	3,63	545
	450	KCA GRP 200/YD45°/R450	3193247	3193274	2,46	4,26	575
	600	KCA GRP 200/YD45°/R600	3193256	3193283	3,16	5,13	790
300	300	KCA GRP 300/YD45°/R300	3193239	3193266	2,66	4,44	645
	450	KCA GRP 300/YD45°/R450	3193248	3193275	2,03	5,03	675
	600	KCA GRP 300/YD45°/R600	3193257	3193284	3,50	5,98	890
400	300	KCA GRP 400/YD45°/R300	3193240	3193267	2,95	4,85	745
	450	KCA GRP 400/YD45°/R450	3193249	3193276	3,32	5,47	775
	600	KCA GRP 400/YD45°/R600	3193258	3193285	3,85	7,00	990
450	300	KCA GRP 450/YD45°/R300	3193241	3193268	3,09	5,07	795
	450	KCA GRP 450/YD45°/R450	3193250	3193277	3,46	5,70	825
	600	KCA GRP 450/YD45°/R600	3193259	3193286	4,06	7,31	1040
500	300	KCA GRP 500/YD45°/R300	3193242	3193269	3,25	5,32	845
	450	KCA GRP 500/YD45°/R450	3193251	3193278	3,62	5,94	875
	600	KCA GRP 500/YD45°/R600	3193260	3193287	4,66	7,64	1090
600	300	KCA GRP 600/YD45°/R300	3193243	3193270	3,54	5,76	945
	450	KCA GRP 600/YD45°/R450	3193252	3193279	3,91	6,38	975
	600	KCA GRP 600/YD45°/R600	3193261	3193288	5,06	8,25	1190
750	300	KCA GRP 750/YD45°/R300	3193244	3193271	3,98	6,24	1095
	450	KCA GRP 750/YD45°/R450	3193253	3193280	4,43	7,07	1125
	600	KCA GRP 750/YD45°/R600	3193262	3193289	5,68	9,18	1340
900	300	KCA GRP 900/YD45°/R300	3193245	3193272	4,43	7,13	1245
	450	KCA GRP 900/YD45°/R450	3193254	3193281	4,80	7,76	1275
	600	KCA GRP 900/YD45°/R600	3193263	3193290	6,30	10,12	1490

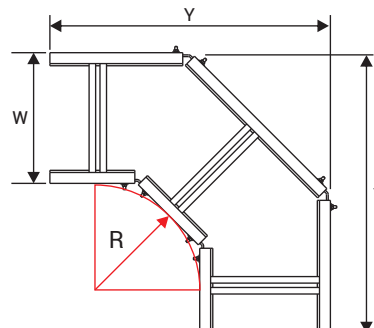
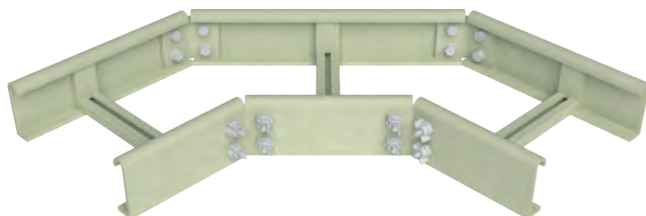
- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE KCA GRP

Fittings

YD90° Horizontal 90° Elbow (R300, R450, R600)

Produced by the pultrusion method. Shipped pre-assembled.



Width (mm)	Radius	Description	Order Code		Weight (kg/pcs)		Y (mm)
			↑100	↑150	↑100	↑150	
150	300	KCA GRP 150 YD90° R300	3177591	3177600	3,08	5,36	495
	450	KCA GRP 150 YD90° R450	3177397	3177406	3,45	5,99	525
	600	KCA GRP 150 YD90° R600	3177672	3177681	3,94	6,83	740
200	300	KCA GRP 200 YD90° R300	3177592	3177601	3,28	5,68	545
	450	KCA GRP 200 YD90° R450	3177398	3177407	3,65	6,31	575
	600	KCA GRP 200 YD90° R600	3177673	3177682	4,17	7,19	790
300	300	KCA GRP 300 YD90° R300	3177593	3177602	3,68	6,31	645
	450	KCA GRP 300 YD90° R450	3177399	3177408	4,74	7,77	675
	600	KCA GRP 300 YD90° R600	3177674	3177683	5,16	8,35	890
400	300	KCA GRP 400 YD90° R300	3177594	3177603	4,89	7,96	745
	450	KCA GRP 400 YD90° R450	3177400	3177409	5,28	8,58	775
	600	KCA GRP 400 YD90° R600	3177675	3177684	5,90	9,48	990
450	300	KCA GRP 450 YD90° R300	3177595	3177604	5,15	8,36	795
	450	KCA GRP 450 YD90° R450	3177401	3177410	5,52	8,99	825
	600	KCA GRP 450 YD90° R600	3177676	3177685	6,18	9,92	1040
500	300	KCA GRP 500 YD90° R300	3177596	3177605	5,43	8,80	845
	450	KCA GRP 500 YD90° R450	3177402	3177411	5,80	9,42	875
	600	KCA GRP 500 YD90° R600	3177677	3177686	6,49	10,56	1090
600	300	KCA GRP 600 YD90° R300	3177597	3177606	5,94	9,60	945
	450	KCA GRP 600 YD90° R450	3177403	3177412	6,31	10,23	975
	600	KCA GRP 600 YD90° R600	3177678	3177687	6,73	12,42	1190
750	300	KCA GRP 750 YD90° R300	3177598	3177607	6,75	10,86	1095
	450	KCA GRP 750 YD90° R450	3177404	3177413	7,12	11,48	1125
	600	KCA GRP 750 YD90° R600	3177679	3177688	7,54	12,83	1340
900	300	KCA GRP 900 YD90° R300	3177599	3177608	7,56	12,10	1245
	450	KCA GRP 900 YD90° R450	3177405	3177414	7,93	12,72	1275
	600	KCA GRP 900 YD90° R600	3177680	3177689	8,85	14,20	1490

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

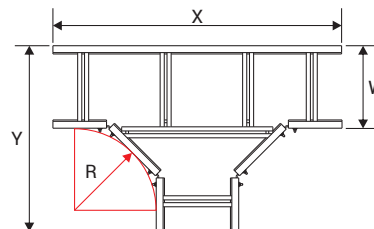
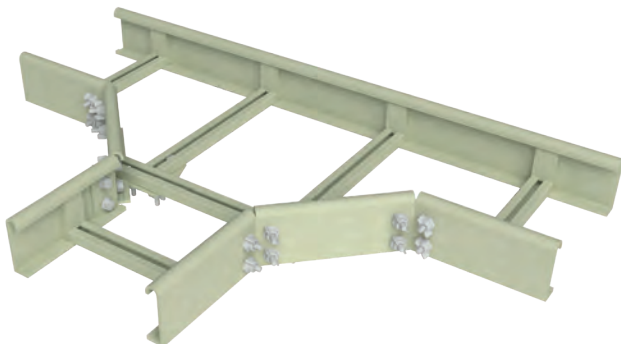
E-LINE KCA GRP

Fittings

YT Fitting (R300, R450, R600)



Produced by the pultrusion method. Shipped pre-assembled.



Width (mm)	Radius	Description	Order Code		Weight (kg/pcs)		Y (mm)	X (mm)
			↑100	↑150	↑100	↑150		
150	300	KCA GRP 150/YT/R300	3177609	3177618	4,78	7,53	495	840
	450	KCA GRP 150/YT/R450	3177433	3177442	6,24	9,96	525	900
	600	KCA GRP 150/YT/R600	3177690	3177699	7,74	12,52	740	1330
200	300	KCA GRP 200/YT/R300	3177610	3177619	5,11	7,91	545	890
	450	KCA GRP 200/YT/R450	3177434	3177443	6,48	10,33	575	950
	600	KCA GRP 200/YT/R600	3177691	3177700	8,16	12,97	790	1380
300	300	KCA GRP 300/YT/R300	3177611	3177620	5,69	8,93	645	990
	450	KCA GRP 300/YT/R450	3177435	3177444	7,26	11,48	675	1050
	600	KCA GRP 300/YT/R600	3177692	3177701	8,89	13,90	890	1480
400	300	KCA GRP 400/YT/R300	3177612	3177621	6,18	9,10	745	1090
	450	KCA GRP 400/YT/R450	3177436	3177445	7,81	12,1	775	1150
	600	KCA GRP 400/YT/R600	3177693	3177702	9,70	15,31	990	1580
450	300	KCA GRP 450/YT/R300	3177613	3177622	6,42	10,04	795	1140
	450	KCA GRP 450/YT/R450	3177437	3177446	8,10	12,74	825	1200
	600	KCA GRP 450/YT/R600	3177694	3177703	10,02	15,79	1040	1630
500	300	KCA GRP 500/YT/R300	3177614	3177623	6,66	10,41	845	1190
	450	KCA GRP 500/YT/R450	3177438	3177447	8,35	13,13	875	1250
	600	KCA GRP 500/YT/R600	3177695	3177704	10,35	16,28	1090	1680
600	300	KCA GRP 600/YT/R300	3177615	3177624	7,68	12,30	945	1290
	450	KCA GRP 600/YT/R450	3177439	3177448	9,46	14,65	975	1350
	600	KCA GRP 600/YT/R600	3177696	3177705	11,02	17,30	1190	1780
750	300	KCA GRP 750/YT/R300	3177616	3177625	8,42	13,07	1095	1440
	450	KCA GRP 750/YT/R450	3177440	3177449	10,27	16,01	1125	1500
	600	KCA GRP 750/YT/R600	3177697	3177706	12,54	19,58	1340	1930
900	300	KCA GRP 900/YT/R300	3177617	3177626	9,78	15,22	1245	1590
	450	KCA GRP 900/YT/R450	3177441	3177450	11,76	18,21	1275	1650
	600	KCA GRP 900/YT/R600	3177698	3177707	14,23	22,02	1490	2080

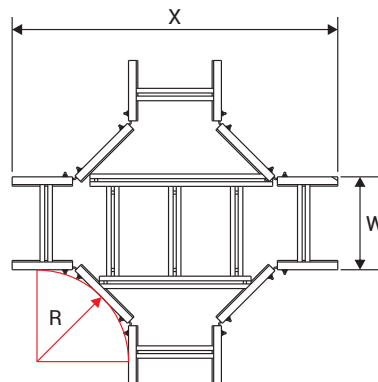
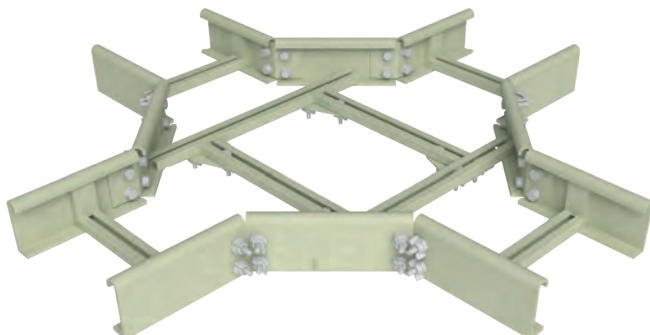
- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE KCA GRP

Fittings

AD Horizontal Cross (R300, R450, R600)

Produced by the pultrusion method. Shipped pre-assembled.



Width (mm)	Radius	Description	Order Code		Weight (kg/pcs)		X (mm)
			↑100	↑150	↑100	↑150	
150	300	KCA GRP 150/AD/R300	3177627	3177636	6,44	10,95	840
	450	KCA GRP 150/AD/R450	3177451	3177460	8,32	14,04	900
	600	KCA GRP 150/AD/R600	3177708	3177717	10,58	17,58	1330
200	300	KCA GRP 200/AD/R300	3177628	3177637	6,59	11,24	890
	450	KCA GRP 200/AD/R450	3177452	3177461	8,55	14,38	950
	600	KCA GRP 200/AD/R600	3177709	3177718	10,89	18,04	1380
300	300	KCA GRP 300/AD/R300	3177629	3177638	7,32	12,26	990
	450	KCA GRP 300/AD/R450	3177453	3177462	9,35	15,48	1050
	600	KCA GRP 300/AD/R600	3177710	3177719	11,54	19,00	1480
400	300	KCA GRP 400/AD/R300	3177630	3177639	7,79	12,93	1090
	450	KCA GRP 400/AD/R450	3177454	3177463	9,94	16,10	1150
	600	KCA GRP 400/AD/R600	3177711	3177720	12,57	20,45	1580
450	300	KCA GRP 450/AD/R300	3177631	3177640	8,01	13,26	1140
	450	KCA GRP 450/AD/R450	3177455	3177464	10,16	16,65	1200
	600	KCA GRP 450/AD/R600	3177712	3177721	12,90	20,19	1630
500	300	KCA GRP 500/AD/R300	3177632	3177641	8,26	13,60	1190
	450	KCA GRP 500/AD/R450	3177456	3177465	10,39	16,99	1250
	600	KCA GRP 500/AD/R600	3177713	3177722	13,24	21,41	1680
600	300	KCA GRP 600/AD/R300	3177633	3177642	9,78	15,50	1290
	450	KCA GRP 600/AD/R450	3177457	3177466	11,45	18,48	1350
	600	KCA GRP 600/AD/R600	3177714	3177723	13,96	22,46	1780
750	300	KCA GRP 750/AD/R300	3177634	3177643	10,00	16,10	1440
	450	KCA GRP 750/AD/R450	3177458	3177467	12,31	19,73	1500
	600	KCA GRP 750/AD/R600	3177715	3177724	15,12	24,77	1930
900	300	KCA GRP 900/AD/R300	3177635	3177644	11,45	18,16	1590
	450	KCA GRP 900/AD/R450	3177459	3177468	13,85	21,93	1650
	600	KCA GRP 900/AD/R600	3177716	3177725	17,36	27,36	2080

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

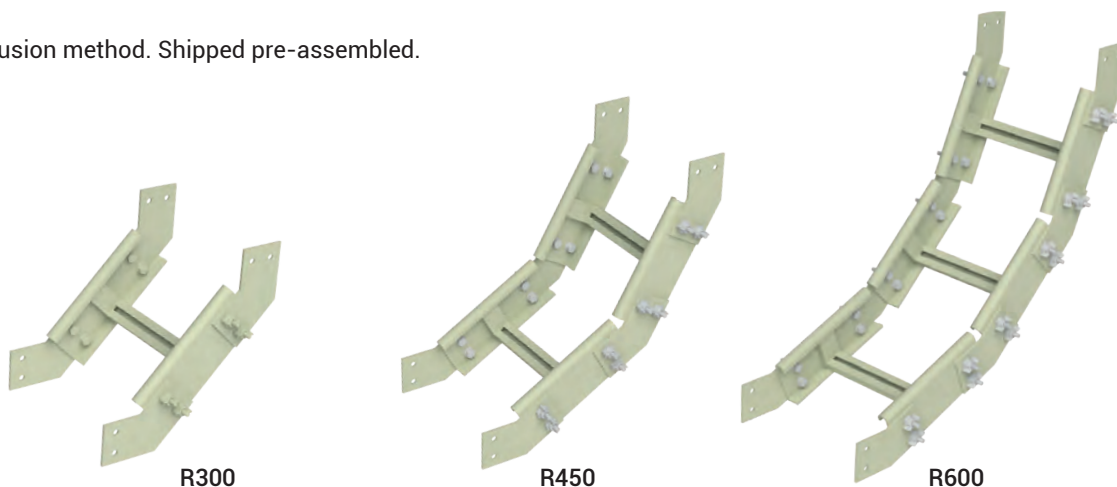
E-LINE KCA GRP

Fittings

ID90° Inside Vertical Fitting (R300, R450, R600)



Produced by the pultrusion method. Shipped pre-assembled.



R300

R450

R600

Width (mm)	Radius	Description	Order Code		Weight (kg/pcs)	
			↑100	↑150	↑100	↑150
150	300	KCA GRP 150/ID90/R300	3193516	3193543	1,54	2,53
	450	KCA GRP 150/ID90/R450	3193525	3193552	2,84	4,67
	600	KCA GRP 150/ID90/R600	3193534	3193561	4,13	6,79
200	300	KCA GRP 200/ID90/R300	3193517	3193544	1,50	2,59
	450	KCA GRP 200/ID90/R450	3193526	3193553	2,75	4,30
	600	KCA GRP 200/ID90/R600	3193535	3193562	4,00	6,20
300	300	KCA GRP 300/ID90/R300	3193518	3193545	1,68	2,55
	450	KCA GRP 300/ID90/R450	3193527	3193554	2,85	4,75
	600	KCA GRP 300/ID90/R600	3193536	3193563	3,00	7,15
400	300	KCA GRP 400/ID90/R300	3193519	3193546	1,68	2,75
	450	KCA GRP 400/ID90/R450	3193528	3193555	3,11	5,07
	600	KCA GRP 400/ID90/R600	3193537	3193564	4,55	7,39
450	300	KCA GRP 450/ID90/R300	3193520	3193547	2,03	3,33
	450	KCA GRP 450/ID90/R450	3193529	3193556	3,17	5,15
	600	KCA GRP 450/ID90/R600	3193538	3193565	4,63	7,51
500	300	KCA GRP 500/ID90/R300	3193521	3193548	2,08	3,41
	450	KCA GRP 500/ID90/R450	3193530	3193557	3,22	5,23
	600	KCA GRP 500/ID90/R600	3193539	3193566	4,71	7,64
600	300	KCA GRP 600/ID90/R300	3193522	3193549	2,19	3,57
	450	KCA GRP 600/ID90/R450	3193531	3193558	3,38	5,40
	600	KCA GRP 600/ID90/R600	3193540	3193567	4,88	7,83
750	300	KCA GRP 750/ID90/R300	3193523	3193550	2,36	3,82
	450	KCA GRP 750/ID90/R450	3193532	3193559	3,50	5,64
	600	KCA GRP 750/ID90/R600	3193541	3193568	5,13	8,24
900	300	KCA GRP 900/ID90/R300	3193524	3193551	2,52	4,06
	450	KCA GRP 900/ID90/R450	3193533	3193560	3,66	5,88
	600	KCA GRP 900/ID90/R600	3193542	3193569	5,38	8,61

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

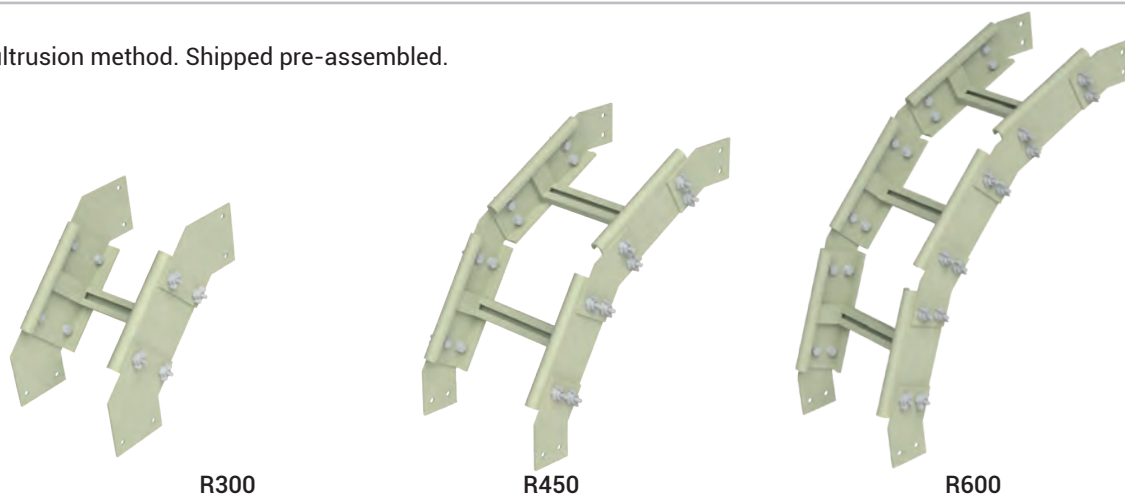
E-LINE KCA GRP

Fittings

DD90° Outside Vertical Fitting (R300, R450, R600)



Produced by the pultrusion method. Shipped pre-assembled.



Width (mm)	Radius	Description	Order Code		Weight (kg/pcs)	
			↑100	↑150	↑100	↑150
150	300	KCA GRP 150/DD90/R300	3193570	3193597	1,54	2,55
	450	KCA GRP 150/DD90/R450	3193579	3193606	2,59	4,67
	600	KCA GRP 150/DD90/R600	3193588	3193615	3,65	6,79
200	300	KCA GRP 200/DD90/R300	3193571	3193598	1,57	2,59
	450	KCA GRP 200/DD90/R450	3193580	3193607	2,65	4,75
	600	KCA GRP 200/DD90/R600	3193589	3193616	3,73	6,92
300	300	KCA GRP 300/DD90/R300	3193572	3193599	1,62	2,67
	450	KCA GRP 300/DD90/R450	3193581	3193608	2,76	4,91
	600	KCA GRP 300/DD90/R600	3193590	3193617	3,89	7,15
400	300	KCA GRP 400/DD90/R300	3193573	3193600	1,68	2,75
	450	KCA GRP 400/DD90/R450	3193582	3193609	2,87	5,07
	600	KCA GRP 400/DD90/R600	3193591	3193618	4,06	7,39
450	300	KCA GRP 450/DD90/R300	3193574	3193601	2,03	3,33
	450	KCA GRP 450/DD90/R450	3193583	3193610	2,92	5,15
	600	KCA GRP 450/DD90/R600	3193592	3193619	4,14	7,51
500	300	KCA GRP 500/DD90/R300	3193575	3193602	2,08	3,41
	450	KCA GRP 500/DD90/R450	3193584	3193611	2,98	5,23
	600	KCA GRP 500/DD90/R600	3193593	3193620	4,23	7,64
600	300	KCA GRP 600/DD90/R300	3193576	3193603	2,19	3,57
	450	KCA GRP 600/DD90/R450	3193585	3193612	3,09	5,40
	600	KCA GRP 600/DD90/R600	3193594	3193621	4,39	7,88
750	300	KCA GRP 750/DD90/R300	3193577	3193604	2,36	3,82
	450	KCA GRP 750/DD90/R450	3193586	3193613	3,26	5,64
	600	KCA GRP 750/DD90/R600	3193595	3193622	4,64	8,24
900	300	KCA GRP 900/DD90/R300	3193578	3193605	2,52	4,06
	450	KCA GRP 900/DD90/R450	3193587	3193614	3,42	5,88
	600	KCA GRP 900/DD90/R600	3193596	3193623	4,89	8,61

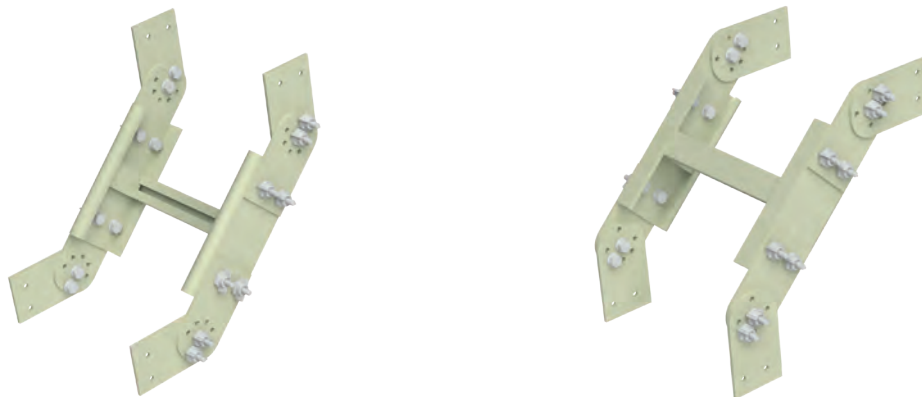
- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE KCA GRP

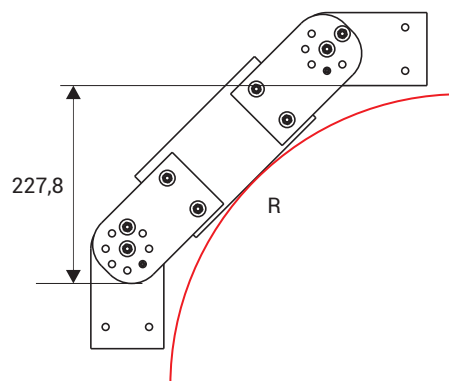
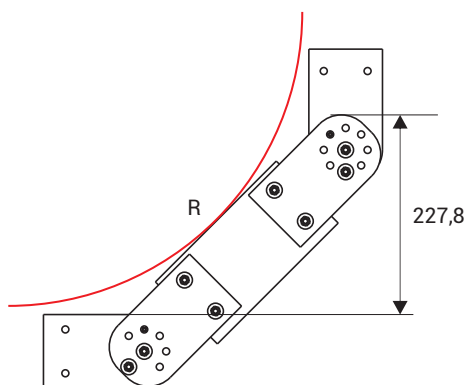
Fittings

SDM Vertical Adjustable Fitting

Produced by the pultrusion method. Shipped pre-assembled.



Description	Width (mm)	Thickness (mm)	Order Code		Weight (kg/pcs)	
			↑100	↑150	↑100	↑150
KCA GRP 150 SDM	150	5	3177415	3177424	1,89	3,40
KCA GRP 200 SDM	200	5	3177416	3177425	1,92	3,44
KCA GRP 300 SDM	300	5	3177417	3177426	1,98	3,52
KCA GRP 400 SDM	400	5	3177418	3177427	2,03	3,61
KCA GRP 450 SDM	450	5	3177419	3177428	2,38	4,17
KCA GRP 500 SDM	500	5	3177420	3177429	2,44	4,25
KCA GRP 600 SDM	600	5	3177421	3177430	2,55	4,42
KCA GRP 750 SDM	750	5	3177422	3177431	2,73	4,67
KCA GRP 900 SDM	900	5	3177423	3177432	2,90	4,92



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

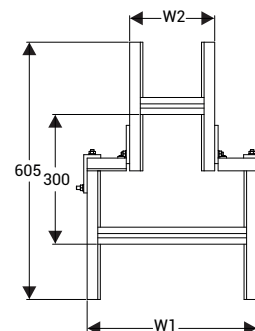
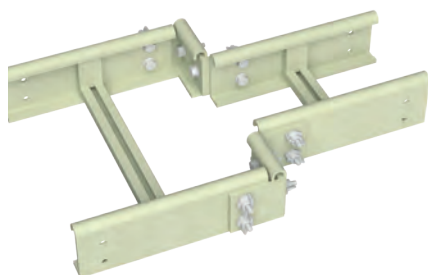
E-LINE KCA GRP

Fittings

MR Reducer Middle



Produced by the pultrusion method. Shipped pre-assembled.



W1 (mm)	W2 (mm)	Description	Order Code		Weight (kg/pcs)	
			↑100	↑150	↑100	↑150
300	150	KCA GRP 300/150/ MR	3193291	3193324	2,91	4,95
400		KCA GRP 400/150/ MR	3193292	3193325	3,10	5,27
450		KCA GRP 450/150/ MR	3193293	3193326	3,20	5,43
500		KCA GRP 500/150/ MR	3193294	3193327	3,30	5,59
600		KCA GRP 600/150/ MR	3193295	3193328	3,49	5,91
750		KCA GRP 750/150/ MR	3193296	3193329	3,79	6,39
900		KCA GRP 900/150/ MR	3193297	3193330	4,08	6,86
300	200	KCA GRP 300/200/ MR	3193298	3193331	2,87	4,87
400		KCA GRP 400/200/ MR	3193299	3193332	3,06	5,19
450		KCA GRP 450/200/ MR	3193300	3193333	3,16	5,35
500		KCA GRP 500/200/ MR	3193301	3193334	3,26	5,51
600		KCA GRP 600/200/ MR	3193302	3193335	3,45	5,83
750		KCA GRP 750/200/ MR	3193303	3193336	3,74	6,31
900		KCA GRP 900/200/ MR	3193304	3193337	4,04	6,79
400	300	KCA GRP 400/300/ MR	3193305	3193338	2,98	5,04
450		KCA GRP 450/300/ MR	3193306	3193339	3,08	5,20
500		KCA GRP 500/300/ MR	3193307	3193340	3,17	5,35
600		KCA GRP 600/300/ MR	3193308	3193341	3,37	5,67
750		KCA GRP 750/300/ MR	3193309	3193342	3,66	6,15
900		KCA GRP 900/300/ MR	3193310	3193343	3,95	6,63
500	400	KCA GRP 500/400/ MR	3193311	3193344	3,09	5,20
600		KCA GRP 600/400/ MR	3193312	3193345	3,28	5,52
750		KCA GRP 750/400/ MR	3193313	3193346	3,58	5,99
900		KCA GRP 900/400/ MR	3193314	3193347	3,87	6,47
600	450	KCA GRP 600/450/ MR	3193315	3193348	3,24	5,44
750		KCA GRP 750/450/ MR	3193316	3193349	3,53	5,92
900		KCA GRP 900/450/ MR	3193317	3193350	3,83	6,39
600	500	KCA GRP 600/500/ MR	3193318	3193351	3,20	5,36
750		KCA GRP 750/500/ MR	3193319	3193352	3,49	5,84
900		KCA GRP 900/500/ MR	3193320	3193353	3,78	6,32
750	600	KCA GRP 750/600/ MR	3193321	3193354	3,41	5,68
900		KCA GRP 900/600/ MR	3193322	3193355	3,70	6,16
900	750	KCA GRP 900/750/ MR	3193323	3193356	3,57	5,92

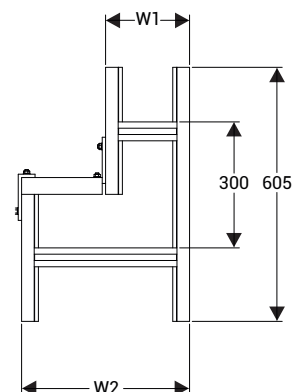
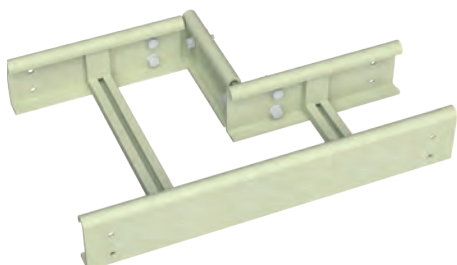
- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE KCA GRP

Fittings

RR Reducer Right

Produced by the pultrusion method. Shipped pre-assembled.



W1 (mm)	W2 (mm)	Description	Order Code		Weight (kg/pcs)	
			↑100	↑150	↑100	↑150
300	150	KCA GRP 300/150/ RR	3193357	3193390	2,59	4,44
400		KCA GRP 400/150/ RR	3193358	3193391	2,79	4,76
450		KCA GRP 450/150/ RR	3193359	3193392	2,89	4,92
500		KCA GRP 500/150/ RR	3193360	3193393	2,98	5,08
600		KCA GRP 600/150/ RR	3193361	3193394	3,18	5,39
750		KCA GRP 750/150/ RR	3193362	3193395	3,47	5,87
900		KCA GRP 900/150/ RR	3193363	3193396	3,76	6,35
300	200	KCA GRP 300/200/ RR	3193364	3193397	2,55	4,36
400		KCA GRP 400/200/ RR	3193365	3193398	2,75	4,68
450		KCA GRP 450/200/ RR	3193366	3193399	2,84	4,84
500		KCA GRP 500/200/ RR	3193367	3193400	2,94	5,00
600		KCA GRP 600/200/ RR	3193368	3193401	3,13	5,32
750		KCA GRP 750/200/ RR	3193369	3193402	3,43	5,79
900		KCA GRP 900/200/ RR	3193370	3193403	3,72	6,27
400	300	KCA GRP 400/300/ RR	3193371	3193404	2,66	4,52
450		KCA GRP 450/300/ RR	3193372	3193405	2,76	4,68
500		KCA GRP 500/300/ RR	3193373	3193406	2,86	4,84
600		KCA GRP 600/300/ RR	3193374	3193407	3,05	5,16
750		KCA GRP 750/300/ RR	3193375	3193408	3,34	5,64
900		KCA GRP 900/300/ RR	3193376	3193409	3,63	6,11
500	400	KCA GRP 500/400/ RR	3193377	3193410	2,77	4,68
600		KCA GRP 600/400/ RR	3193378	3193411	2,97	5,00
750		KCA GRP 750/400/ RR	3193379	3193412	3,26	5,48
900		KCA GRP 900/400/ RR	3193380	3193413	3,55	5,96
600	450	KCA GRP 600/450/ RR	3193381	3193414	2,93	4,92
750		KCA GRP 750/450/ RR	3193382	3193415	3,22	5,40
900		KCA GRP 900/450/ RR	3193383	3193416	3,51	5,88
600	500	KCA GRP 600/500/ RR	3193384	3193417	2,88	4,84
750		KCA GRP 750/500/ RR	3193385	3193418	3,17	5,32
900		KCA GRP 900/500/ RR	3193386	3193419	3,47	5,80
750	600	KCA GRP 750/600/ RR	3193387	3193420	3,09	5,17
900		KCA GRP 900/600/ RR	3193388	3193421	3,38	5,64
900	750	KCA GRP 900/750/ RR	3193389	3193422	3,26	5,41

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

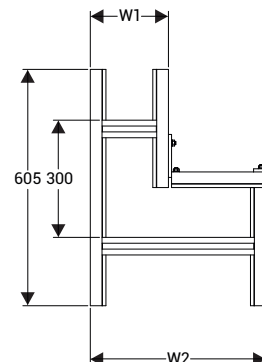
E-LINE KCA GRP

Fittings

LR Reducer Left



Produced by the pultrusion method. Shipped pre-assembled.



W1 (mm)	W2 (mm)	Description	Order Code		Weight (kg/pcs)	
			↑100	↑150	↑100	↑150
300	150	KCA GRP 300/150/ LR	3193423	3193456	2,59	4,44
400		KCA GRP 400/150/ LR	3193424	3193457	2,79	4,76
450		KCA GRP 450/150/ LR	3193425	3193458	2,89	4,92
500		KCA GRP 500/150/ LR	3193426	3193459	2,98	5,08
600		KCA GRP 600/150/ LR	3193427	3193460	3,18	5,39
750		KCA GRP 750/150/ LR	3193428	3193461	3,47	5,87
900		KCA GRP 900/150/ LR	3193429	3193462	3,76	6,35
300	200	KCA GRP 300/200/ LR	3193430	3193463	2,55	4,36
400		KCA GRP 400/200/ LR	3193431	3193464	2,75	4,68
450		KCA GRP 450/200/ LR	3193432	3193465	2,84	4,84
500		KCA GRP 500/200/ LR	3193433	3193466	2,94	5,00
600		KCA GRP 600/200/ LR	3193434	3193467	3,13	5,32
750		KCA GRP 750/200/ LR	3193435	3193468	3,43	5,79
900		KCA GRP 900/200/ LR	3193436	3193469	3,72	6,27
400	300	KCA GRP 400/300/ LR	3193437	3193470	2,66	4,52
450		KCA GRP 450/300/ LR	3193438	3193471	2,76	4,68
500		KCA GRP 500/300/ LR	3193439	3193472	2,86	4,84
600		KCA GRP 600/300/ LR	3193440	3193473	3,05	5,16
750		KCA GRP 750/300/ LR	3193441	3193474	3,34	5,64
900		KCA GRP 900/300/ LR	3193442	3193475	3,63	6,11
500	400	KCA GRP 500/400/ LR	3193443	3193476	2,77	4,68
600		KCA GRP 600/400/ LR	3193444	3193477	2,97	5,00
750		KCA GRP 750/400/ LR	3193445	3193478	3,26	5,48
900		KCA GRP 900/400/ LR	3193446	3193479	3,55	5,96
600	450	KCA GRP 600/450/ LR	3193447	3193480	2,93	4,92
750		KCA GRP 750/450/ LR	3193448	3193481	3,22	5,40
900		KCA GRP 900/450/ LR	3193449	3193482	3,51	5,88
600	500	KCA GRP 600/500/ LR	3193450	3193483	2,88	4,84
750		KCA GRP 750/500/ LR	3193451	3193484	3,17	5,32
900		KCA GRP 900/500/ LR	3193452	3193485	3,47	5,80
750	600	KCA GRP 750/600/ LR	3193453	3193486	3,09	5,17
900		KCA GRP 900/600/ LR	3193454	3193487	3,38	5,64
900	750	KCA GRP 900/750/ LR	3193455	3193488	3,26	5,41

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

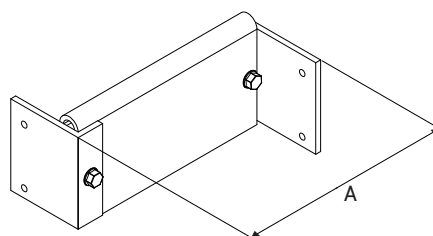
E-LINE KCA GRP

Fittings

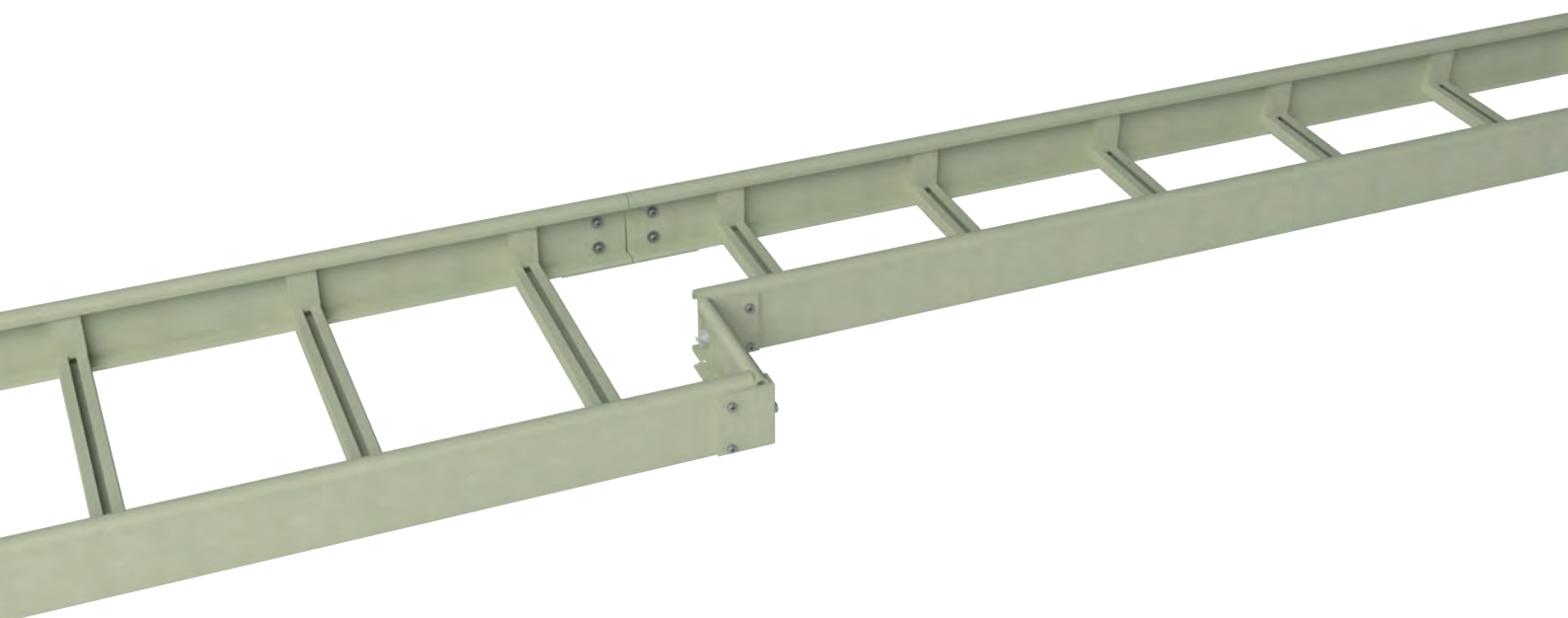
Reducer Connector



Manufactured using the pultrusion method. All parts are produced as GRP. GRP bolt kits are used.
(Shipped pre-assembled.)



Description	A (mm)	Order Code		Weight (kg/pcs)	
		↑100	↑150	↑100	↑150
KCA GRP Reducer Connector 050	50	3193624	3193629	0,39	0,65
KCA GRP Reducer Connector 100	100	3177469	3177476	0,46	0,77
KCA GRP Reducer Connector 150	150	3177470	3177477	0,53	0,89
KCA GRP Reducer Connector 200	200	3177471	3177478	0,60	1,01
KCA GRP Reducer Connector 250	250	3193625	3193630	0,67	1,13
KCA GRP Reducer Connector 300	300	3177472	3177479	0,74	1,25
KCA GRP Reducer Connector 350	350	3193626	3193631	0,81	1,36
KCA GRP Reducer Connector 400	400	3177473	3177480	0,88	1,48
KCA GRP Reducer Connector 450	450	3193627	3193632	0,95	1,60
KCA GRP Reducer Connector 500	500	3177474	3177481	1,02	1,72
KCA GRP Reducer Connector 600	600	3177475	3177482	1,16	1,96
KCA GRP Reducer Connector 750	750	3193628	3193633	1,37	2,32



- For the reducer piece, the main body and bent end parts are produced as GRP.
- For the reducer connection piece, 4 sets of SS316 M10x25 bolt kits must be ordered

E-LINE KCA GRP

Covers

Straight Cover



Manufactured using the pultrusion method



Description	Height (mm)	Width (mm)	Length (m)	Thickness (mm)	Weight (kg/m)	Order Code
KCA/CTA GRP K 050 / L=3m	15	50	3	3	0,43	3191138
KCA GRP K 100 / L=3m	15	100	3	3	0,71	3191139
KCA GRP K 150 / L=3m	15	150	3	3	0,99	3177489
KCA GRP K 200 / L=3m	15	200	3	3	1,26	3177490
KCA GRP K 250 / L=3m	15	250	3	3	1,54	3191142
KCA GRP K 300 / L=3m	15	300	3	3	1,82	3177491
KCA GRP K 400 / L=3m	15	400	3	3	2,38	3177492
KCA GRP K 450 / L=3m	15	450	3	3	2,65	3177493
KCA GRP K 500 / L=3m	15	500	3	3	2,93	3177494
KCA GRP K 600 / L=3m	15	600	3	3	3,49	3177495
KCA GRP K 750 / L=3m	15	750	3	4	6,32	3177496
KCA GRP K 900 / L=3m	15	900	3	5	7,99	3177497

Recommended number of cover clamps

Required Quantity of Cover Clamps			
Products	Heavy Duty Cover Clamp		
Straight Lengths (3 Meters)	3 Pieces (1 Piece per Meter)		
YD45° Horizontal Fitting	2 pcs		
YD90° Horizontal Fitting	3 pcs		
YT Tee	3 pcs		
AD Cross	4 pcs		
ID Inside Vertical Elbow Fitting / DD Outside Vertical Elbow Fitting	R300	R450	R600
	1 pcs	2 pcs	3 pcs

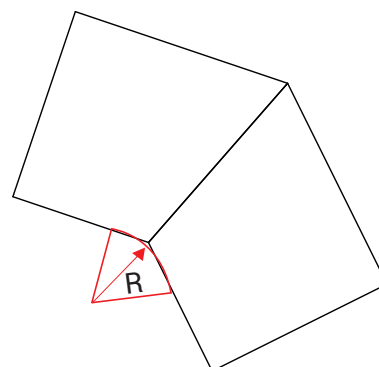
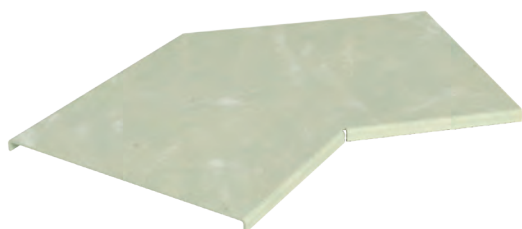
Note: For 750mm and 900mm widths, clutch cover clamps made of 316-grade stainless steel, produced by the pultrusion method, with connection rods and tightening nuts, will be used.

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : For installation, "Heavy Duty Cover Clamp" should be ordered in the quantities recommended above. (Page 41)

E-LINE KCA GRP

Covers

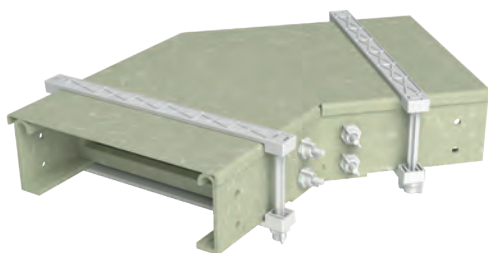
YD45° Fitting Cover (R300, R450, R600)



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
KCA GRP K 150 YD45°	15	150	3	3193634	3193643	3193652	0,49	0,62	0,74
KCA GRP K 200 YD45°	15	200	3	3193635	3193644	3193653	0,66	0,83	0,98
KCA GRP K 300 YD45°	15	300	3	3193636	3193645	3193654	1,03	1,27	1,49
KCA GRP K 400 YD45°	15	400	3	3193637	3193646	3193655	1,45	1,76	2,04
KCA GRP K 450 YD45°	15	450	3	3193638	3193647	3193656	1,67	2,02	2,34
KCA GRP K 500 YD45°	15	500	3	3193639	3193648	3193657	1,91	2,29	2,64
KCA GRP K 600 YD45°	15	600	3	3193640	3193649	3193658	2,43	2,87	3,29
KCA GRP K 750 YD45°	15	750	4	3193641	3193650	3193659	4,36	5,11	5,80
KCA GRP K 900 YD45°	15	900	5	3193642	3193651	3193660	5,63	6,53	7,35

Installation

For 50mm - 600mm widths



For 750mm - 900mm widths



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

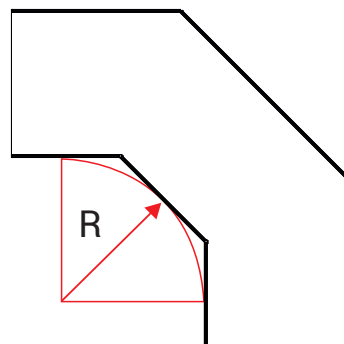
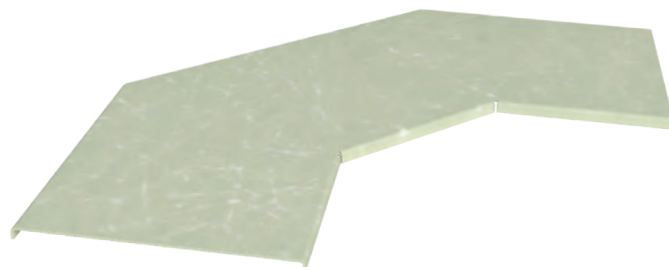
E-LINE KCA GRP

Covers

YD90° Fitting Cover (R300, R450, R600)



KCA GRP



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
KCA GRP K 150 YD90°	15	150	3	3177645	3177498	3177726	0,80	0,93	1,05
KCA GRP K 200 YD90°	15	200	3	3177646	3177499	3177727	1,08	1,25	1,40
KCA GRP K 300 YD90°	15	300	3	3177647	3177500	3177728	1,72	1,95	2,17
KCA GRP K 400 YD90°	15	400	3	3177648	3177501	3177729	2,44	2,75	3,03
KCA GRP K 450 YD90°	15	450	3	3177649	3177502	3177730	2,84	3,18	3,50
KCA GRP K 500 YD90°	15	500	3	3177650	3177503	3177731	3,26	3,64	3,99
KCA GRP K 600 YD90°	15	600	3	3177651	3177504	3177732	4,16	4,62	5,04
KCA GRP K 750 YD90°	15	750	4	3177652	3177505	3177733	5,70	6,26	6,78
KCA GRP K 900 YD90°	15	900	5	3177653	3177506	3177734	7,44	8,11	8,73

Covers

Installation

For 50mm - 600mm widths

For 750mm - 900mm widths

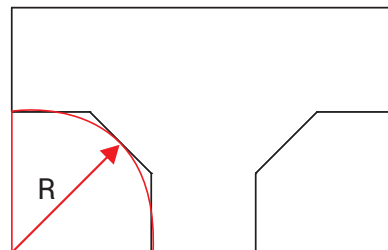
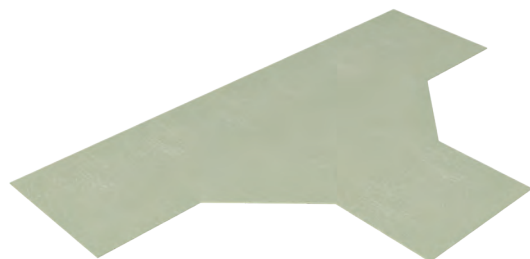


- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

E-LINE KCA GRP

Covers

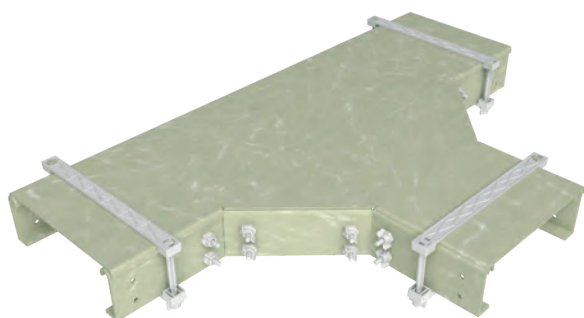
YT Fitting Cover (R300, R450, R600)



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
KCA GRP K 150 YT	15	150	3	3177654	3177516	3177735	1,44	2,11	2,81
KCA GRP K 200 YT	15	200	3	3177655	3177517	3177736	1,88	2,68	3,50
KCA GRP K 300 YT	15	300	3	3177656	3177518	3177737	2,84	3,90	4,96
KCA GRP K 400 YT	15	400	3	3177657	3177519	3177738	3,91	5,23	6,53
KCA GRP K 450 YT	15	450	3	3177658	3177520	3177739	4,48	5,93	7,36
KCA GRP K 500 YT	15	500	3	3177659	3177521	3177740	5,09	6,67	8,21
KCA GRP K 600 YT	15	600	3	3177660	3177522	3177741	6,38	8,22	10,01
KCA GRP K 750 YT	15	750	4	3177661	3177523	3177742	11,36	14,35	17,21
KCA GRP K 900 YT	15	900	5	3177662	3177524	3177743	14,56	18,06	21,41

Installation

For 50mm - 600mm widths



For 750mm - 900mm widths

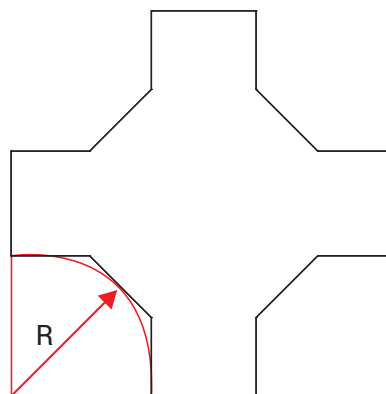
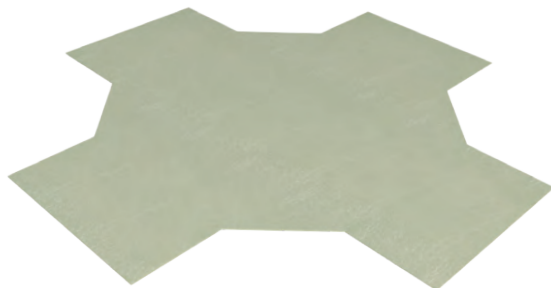


- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

E-LINE KCA GRP

Covers

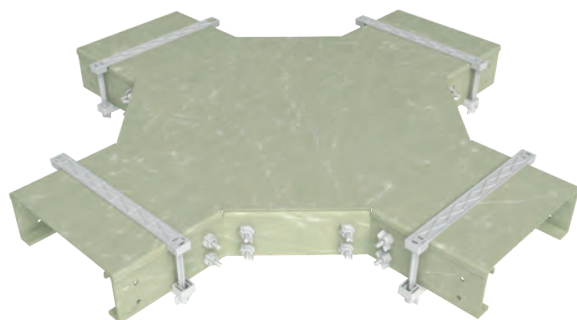
AD Fitting Cover (R300, R450, R600)



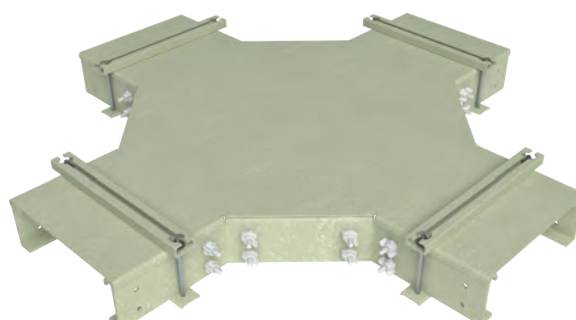
Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
KCA GRP K 150 AD	15	150	3	3177663	3177525	3177744	1,95	2,97	3,21
KCA GRP K 200 AD	15	200	3	3177664	3177526	3177745	2,49	3,69	4,96
KCA GRP K 300 AD	15	300	3	3177665	3177527	3177746	3,67	5,21	6,80
KCA GRP K 400 AD	15	400	3	3177666	3177528	3177747	4,95	6,85	8,76
KCA GRP K 450 AD	15	450	3	3177667	3177529	3177748	5,63	7,70	9,78
KCA GRP K 500 AD	15	500	3	3177668	3177530	3177749	6,35	8,59	10,83
KCA GRP K 600 AD	15	600	3	3177669	3177531	3177750	7,85	10,44	13,00
KCA GRP K 750 AD	15	750	4	3177670	3177532	3177751	13,76	17,92	21,98
KCA GRP K 900 AD	15	900	5	3177671	3177533	3177752	17,39	22,24	26,94

Installation

For 50mm - 600mm widths



For 750mm - 900mm widths



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

E-LINE KCA GRP

Covers

Fitting Cover ID90 Inside Vertical / DD90 Outside Vertical (R300, R450, R600)



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
KCA GRP K 150 ID90/DD90	15	150	3	3193661	3193670	3193679	0,24	0,49	0,74
KCA GRP K 200 ID90/DD90	15	200	3	3193662	3193671	3193680	0,31	0,63	0,95
KCA GRP K 300 ID90/DD90	15	300	3	3193663	3193672	3193681	0,45	0,91	1,36
KCA GRP K 400 ID90/DD90	15	400	3	3193664	3193673	3193682	0,59	1,19	1,78
KCA GRP K 450 ID90/DD90	15	450	3	3193665	3193674	3193683	0,66	1,33	1,99
KCA GRP K 500 ID90/DD90	15	500	3	3193666	3193675	3193684	0,73	1,46	2,20
KCA GRP K 600 ID90/DD90	15	600	3	3193667	3193676	3193685	0,87	1,74	2,61
KCA GRP K 750 ID90/DD90	15	750	3	3193668	3193677	3193686	1,58	3,16	4,74
KCA GRP K 900 ID90/DD90	15	900	3	3193669	3193678	3193687	1,99	3,99	5,99

Quantities to be ordered:

- 1 Piece for R300
- 2 Pieces for R450
- 3 Pieces for R600
- 3 Pieces for R900

Fitting Cover SDM Verticle Adjustable

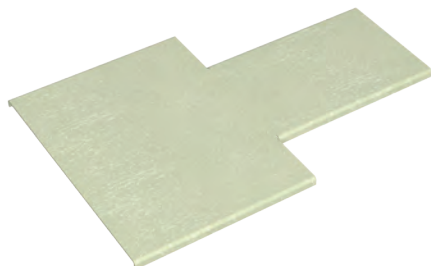
Description	Height (mm)	Width (mm)	Thickness (mm)	Orde Code	Weight (kg/pcs)
KCA GRP 150 SDM	15	150	3	3193661	0,24
KCA GRP 200 SDM	15	200	3	3193662	0,31
KCA GRP 300 SDM	15	300	3	3193663	0,45
KCA GRP 400 SDM	15	400	3	3193664	0,59
KCA GRP 450 SDM	15	450	3	3193665	0,66
KCA GRP 500 SDM	15	500	3	3193666	0,73
KCA GRP 600 SDM	15	600	3	3193667	0,87
KCA GRP 750 SDM	15	750	3	3193668	1,58
KCA GRP 900 SDM	15	900	3	3193669	1,99

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

E-LINE KCA GRP

Covers

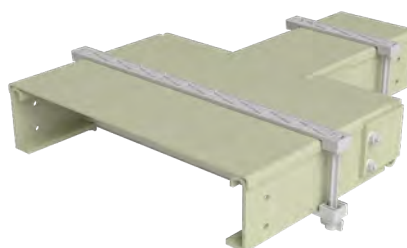
MR Middle Reducer



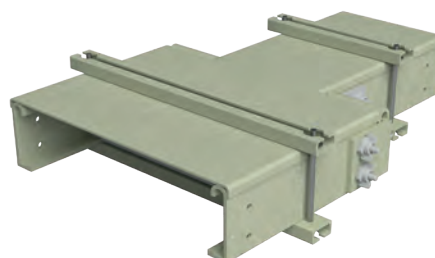
W1 (mm)	W2 (mm)	Description	Order Code	Weight (kg/pcs)
300	150	KCA GRP K 300/150/ MR	3193688	0,85
400		KCA GRP K 400/150/ MR	3193689	1,02
450		KCA GRP K 450/150/ MR	3193690	1,11
500		KCA GRP K 500/150/ MR	3193691	1,19
600		KCA GRP K 600/150/ MR	3193692	1,36
750		KCA GRP K 750/150/ MR	3193693	2,22
900		KCA GRP K 900/150/ MR	3193694	2,72
300	200	KCA GRP K 300/200/ MR	3193695	0,94
400		KCA GRP K 400/200/ MR	3193696	1,11
450		KCA GRP K 450/200/ MR	3193697	1,19
500		KCA GRP K 500/200/ MR	3193698	1,27
600		KCA GRP K 600/200/ MR	3193699	1,44
750		KCA GRP K 750/200/ MR	3193700	1,70
900		KCA GRP K 900/200/ MR	3193701	2,30
400	300	KCA GRP K 400/300/ MR	3193702	1,27
450		KCA GRP K 450/300/ MR	3193703	1,36
500		KCA GRP K 500/300/ MR	3193704	1,44
600		KCA GRP K 600/300/ MR	3193705	1,61
750		KCA GRP K 750/300/ MR	3193706	2,47
900		KCA GRP K 900/300/ MR	3193707	2,97
500	400	KCA GRP K 500/400/ MR	3193708	1,60
600		KCA GRP K 600/400/ MR	3193709	1,78
750		KCA GRP K 750/400/ MR	3193710	2,64
900		KCA GRP K 900/400/ MR	3193711	3,14
600	450	KCA GRP K 600/450/ MR	3193712	1,86
750		KCA GRP K 750/450/ MR	3193713	2,72
900		KCA GRP K 900/450/ MR	3193714	3,23
600	500	KCA GRP K 600/500/ MR	3193715	1,95
750		KCA GRP K 750/500/ MR	3193716	2,81
900		KCA GRP K 900/500/ MR	3193717	3,31
750	600	KCA GRP K 750/600/ MR	3193718	2,97
900		KCA GRP K 900/600/ MR	3193719	3,48
900	750	KCA GRP K 900/750/ MR	3193720	4,34

Installation

For 50mm - 600mm widths



For 750mm - 900mm widths



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

E-LINE KCA GRP

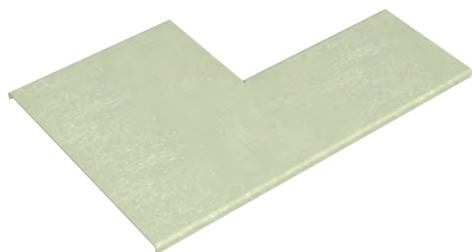
Covers

RR (Right Reducer) / LR (Left Reducer)



KCA GRP

RR



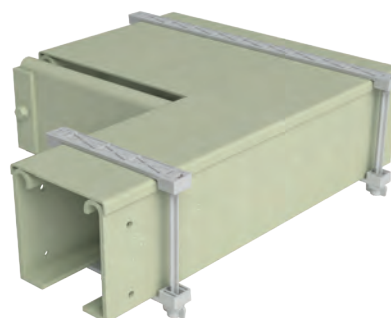
LR



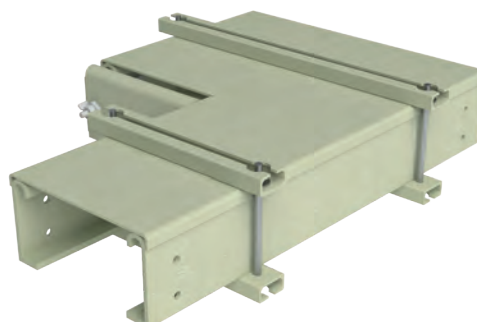
W1 (mm)	W2 (mm)	Description	Order Code	Weight (kg/pcs)
300	150	KCA GRP K 300/150/ RR/LR	3193721	0,85
400		KCA GRP K 400/150/ RR/LR	3193722	1,02
450		KCA GRP K 450/150/ RR/LR	3193723	1,11
500		KCA GRP K 500/150/ RR/LR	3193724	1,19
600		KCA GRP K 600/150/ RR/LR	3193725	1,36
750		KCA GRP K 750/150/ RR/LR	3193726	2,22
900		KCA GRP K 900/150/ RR/LR	3193727	2,72
300	200	KCA GRP K 300/200/ RR/LR	3193728	0,94
400		KCA GRP K 400/200/ RR/LR	3193729	1,11
450		KCA GRP K 450/200/ RR/LR	3193730	1,19
500		KCA GRP K 500/200/ RR/LR	3193731	1,27
600		KCA GRP K 600/200/ RR/LR	3193732	1,44
750		KCA GRP K 750/200/ RR/LR	3193733	2,30
900		KCA GRP K 900/200/ RR/LR	3193734	2,81
400	300	KCA GRP K 400/300/ RR/LR	3193735	1,27
450		KCA GRP K 450/300/ RR/LR	3193736	1,36
500		KCA GRP K 500/300/ RR/LR	3193737	1,44
600		KCA GRP K 600/300/ RR/LR	3193738	1,61
750		KCA GRP K 750/300/ RR/LR	3193739	2,47
900		KCA GRP K 900/300/ RR/LR	3193740	2,97
500	400	KCA GRP K 500/400/ RR/LR	3193741	1,61
600		KCA GRP K 600/400/ RR/LR	3193742	1,78
750		KCA GRP K 750/400/ RR/LR	3193743	2,64
900		KCA GRP K 900/400/ RR/LR	3193744	3,14
600	450	KCA GRP K 600/450/ RR/LR	3193745	1,86
750		KCA GRP K 750/450/ RR/LR	3193746	2,72
900		KCA GRP K 900/450/ RR/LR	3193747	3,23
600	500	KCA GRP K 600/500/ RR/LR	3193748	1,95
750		KCA GRP K 750/500/ RR/LR	3193749	2,81
900		KCA GRP K 900/500/ RR/LR	3193750	3,31
750	600	KCA GRP K 750/600/ RR/LR	3193751	2,97
900		KCA GRP K 900/600/ RR/LR	3193752	3,48
900	750	KCA GRP K 900/750/ RR/LR	3193753	4,34

Installation

For 50mm - 600mm widths



For 750mm - 900mm widths



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Cover Clamp** : Check page 41 for order.

E-LINE KCA GRP

Accessories

Separator

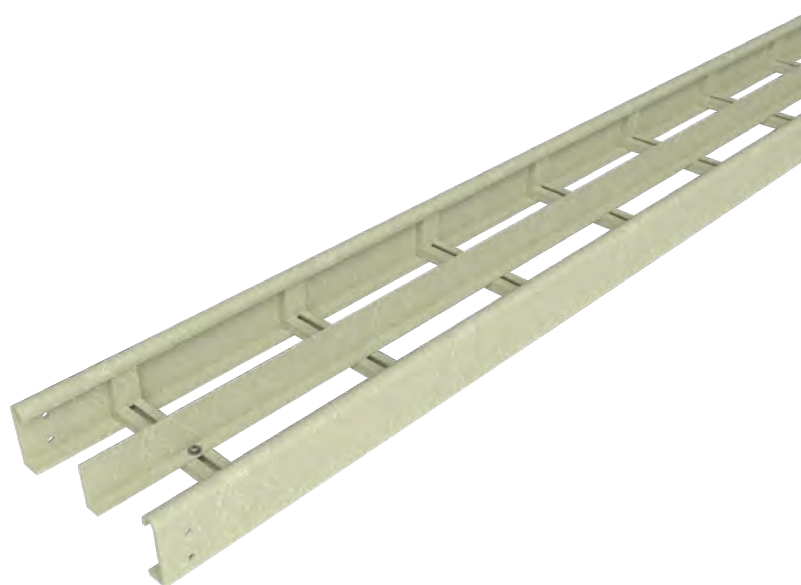
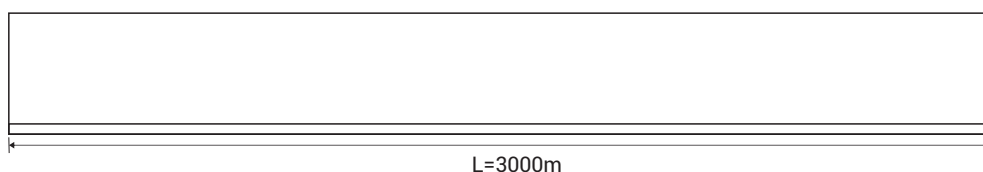
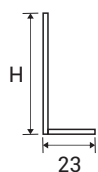


KCA GRP

Accessories



Description	Height (mm)	Thickness (mm)	Weight (kg/m)	Order Code
100 CT-KM GRP Separator L3	95	3	0,92	3191262
150 CT-KM GRP Separator L3	105	3	2,50	3177486



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Fasteners** : M10x25 SS316 Bolt Set or M10x40 GRP Bolt Set

E-LINE KCA GRP

Accessories

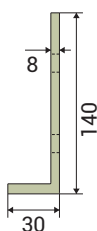
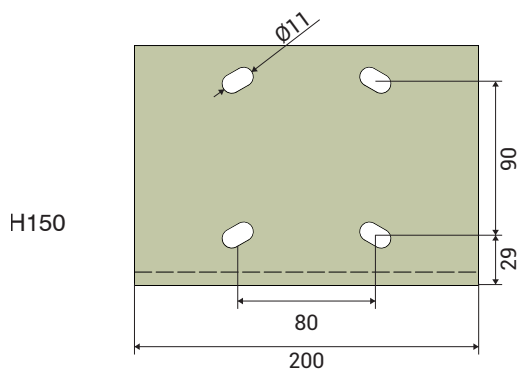
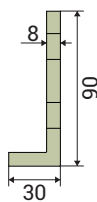
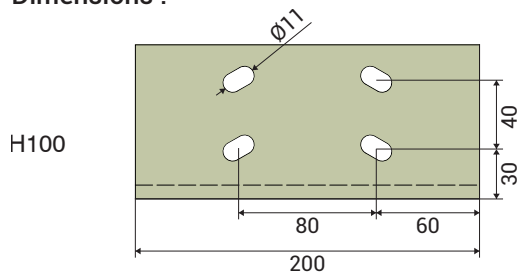
Joint Element, Material: GRP

Produced using the SMC method. Delivered with pre-drilled holes.



Description	Height (mm)	Length (mm)	Thickness (mm)	Required Fixing Set	Weight (kg/pcs)	Order Code
100 KCA/CTA GRP Joint Element	90	200	8,0	4 sets of M10x25 SS316 or 4 sets of M10x40 GRP	0,31	3177483
150 KCA/CTA GRP Joint Element	140	200	8,0	4 sets of M10x25 SS316 or 4 sets of M10x40 GRP	0,45	3177484

Dimensions :



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Fasteners** : M10x25 SS316 Bolt Set or M10x40 GRP Bolt Set

E-LINE KCA GRP

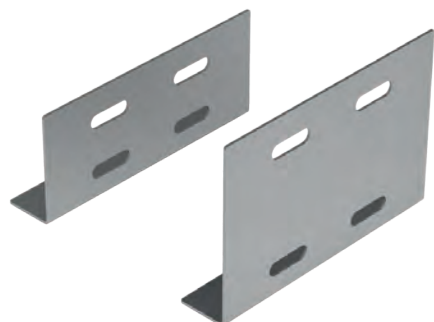
Accessories

Dilatation, Material: 316 Stainless Steel



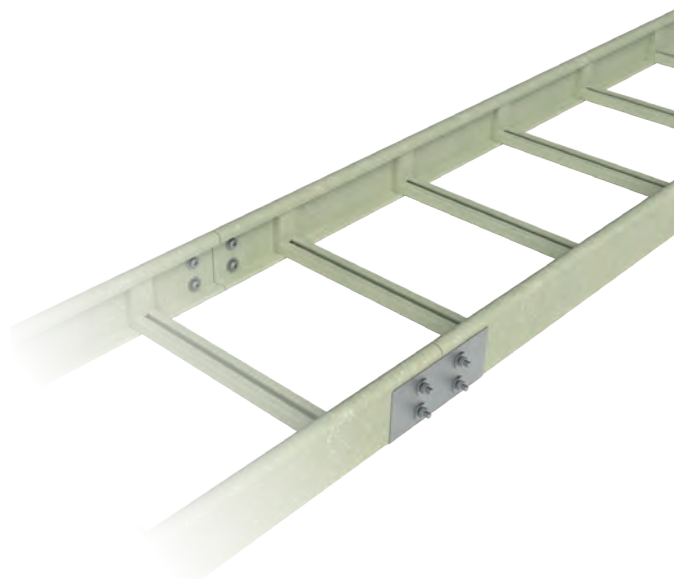
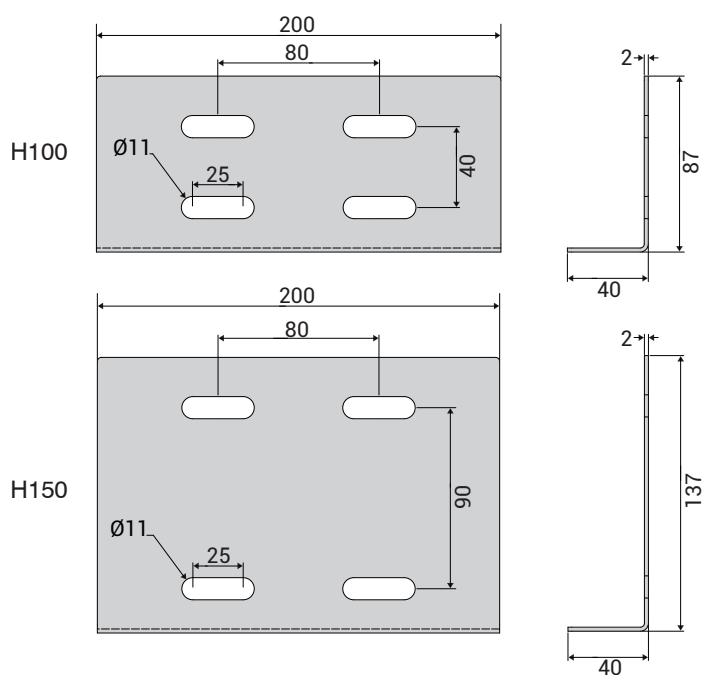
KCA GRP

Accessories



Description	Height (mm)	Length (mm)	Thickness (mm)	Required Fixing Set (SS316)	Weight (kg/pcs)	Order Code
100 KCA/CTA GRP Dilatation SS316	87	200	2	4 set M10x25 SS316	0,37	3415122
150 KCA/CTA GRP Dilatation SS316	137	200	2	4 set M10x25 SS316	0,53	3415123

Dimensions :



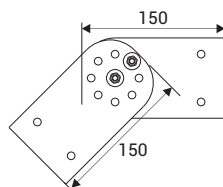
- Material : 316 Quality Stainless Steel
- Color : Standard 316 Quality Stainless Steel Color
- Fasteners : M10x25 SS316 Bolt Set

E-LINE KCA GRP

Accessories

SDE Vertical Adjustable Fitting

Delivered with pre-drilled holes.



Description	Height (mm)	Thickness (mm)	Weight (kg/set)	Order Code
100 KCA GRP SDE	100	5	0,25	3177487
150 KCA GRP SDE	150	5	0,42	3177488

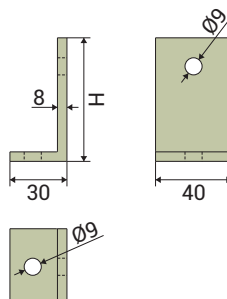
- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and antistatic products are manufactured upon special request.)
- **Color** : RAL 7032 Pebble Grey. (Color can be produced upon request. Minimal color tone variation may be observed.)
- **Fasteners** : M10x25 SS316 Bolt Set or M10x40 GRP Bolt Set

E-LINE KCA GRP

Accessories

L- Fixing Clamp

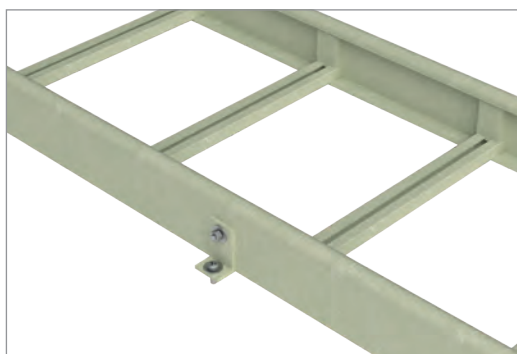
Delivered with pre-drilled holes.



Description	Material	Height (mm)	Weight (kg/set)	Order Code
H100 L-Fixing Clamp (GRP)	GRP	65	0,052	1027017
H150 L-Fixing Clamp (GRP)	GRP	100	0,070	1027286

Installation:

H100



H150



Note :For the L-Fixing Element (GRP) to be mounted to the GRP Ladder, it must be drilled with a drill bit at the mounting location. GRP Ladders will be shipped with holes only at the end sections for the mounting of joint elements.

Fasteners - STK Bracket

Description	Material	Order Code	Weight (kg/pcs)
STK Bracket SS316	Stainless Steel	2095531	0,070

Fasteners (Stainless Steel 316)
Bolt Sets

Description	Material	Order Code	Weight (kg/set)
M8x25 Fixing Set (SS316)	SS316 (A4)	1027109	0,036
M10x25 Fixing Set (SS316)	SS316 (A4)	1074621	0,049



Bolts (DIN 7985)

Description	Material	Order Code	Weight (kg/pcs)
M8x25 Bolt (DIN 7985) (SS316)	SS316 (A4)	1025647	0,019
M10x25 Bolt (DIN 7985) (SS316)	SS316 (A4)	1075074	0,028



Nuts (DIN 934)

Description	Material	Order Code	Weight (kg/pcs)
M8 Hex Nut (DIN 934) (SS316)	SS316 (A4)	1025649	0,005
M10 x 25 Hex Nut (DIN 934) (SS316)	SS316 (A4)	1063408	0,01



Flat Washers (DIN 9021)

Description	Material	Order Code	Weight (kg/pcs)
M8 Plain Washer (DIN 9021) (SS316)	SS316 (A4)	1025648	0,006
M10x25 Plain Washer (DIN 9021) (SS316)	SS316 (A4)	1075075	0,011



Description	Material	Order Code	Weight (kg/set)
M10X40 Composite Bolt + M10 Wing Nut	GRP	1071357	0,015



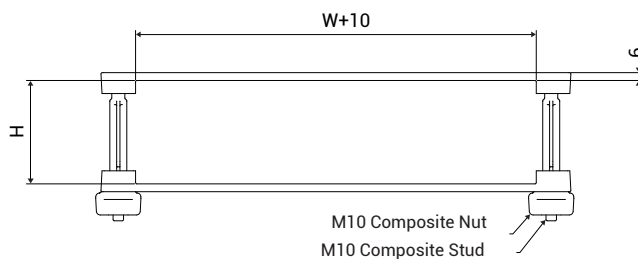
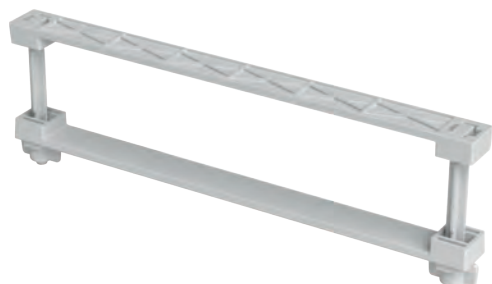
E-LINE KCA GRP

Cover Clamp

Heavy Duty Cover Clamp

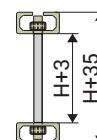
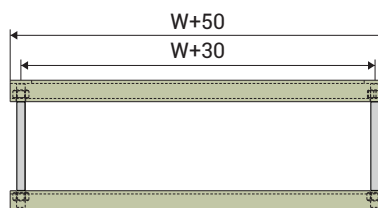


Manufactured using the SMC method.



For 50mm - 600mm widths

Description	Height (mm)	Width (mm)	Weight (kg/set)	Order Code
100 KCA GRP 150 Heavy Duty Cover Clamp	100	150	0,144	3407281
100 KCA GRP 200 Heavy Duty Cover Clamp	100	200	0,163	3407282
100 KCA GRP 300 Heavy Duty Cover Clamp	100	300	0,209	3407284
100 KCA GRP 400 Heavy Duty Cover Clamp	100	400	0,22	3407285
100 KCA GRP 450 Heavy Duty Cover Clamp	100	450	0,241	3407286
100 KCA GRP 500 Heavy Duty Cover Clamp	100	500	0,261	3407287
100 KCA GRP 600 Heavy Duty Cover Clamp	100	600	0,291	3407288
150 KCA GRP 150 Heavy Duty Cover Clamp	150	150	0,153	3407289
150 KCA GRP 200 Heavy Duty Cover Clamp	150	200	0,163	3407290
150 KCA GRP 300 Heavy Duty Cover Clamp	150	300	0,218	3407291
150 KCA GRP 400 Heavy Duty Cover Clamp	150	400	0,23	3407293
150 KCA GRP 450 Heavy Duty Cover Clamp	150	450	0,25	3407294
150 KCA GRP 500 Heavy Duty Cover Clamp	150	500	0,261	3407295
150 KCA GRP 600 Heavy Duty Cover Clamp	150	600	0,3	3407296



For 750mm - 900mm widths

Material & Quantity:

Profiles: GRP (2 pieces)

Threaded Rod: M8, SS316 (2 pieces)

Nut: M8, SS316 (4 pieces)

Flat Washer: M8, SS316 (4 pieces)

Description	Height (mm)	Width (mm)	Weight (kg/set)	Order Code
100 CT-KM GRP 750 Heavy Duty Cover Clamp	100	750	1,128	3210406
100 CT-KM GRP 900 Heavy Duty Cover Clamp	100	900	1,316	3210407
150 CT-KM GRP 750 Heavy Duty Cover Clamp	150	750	1,154	3210416
150 CT-KM GRP 900 Heavy Duty Cover Clamp	150	900	1,342	3210417

E-LINE KCA GRP

KCA GRP Specification

Glass Reinforced Polyester



Part 1 – Scope

This specification covers the minimum requirements for the design, manufacture, testing, and supply of Glass Reinforced Polyester (KCA GRP) cable ladders, necessary hardware, accessories, and fittings suitable for indoor/outdoor installations required for cable laying.

- KCA GRP cable ladders shall be designed and manufactured meeting the requirements of NEMA FG-1 and ASTM E-84.
- All cable ladders and accessories shall be corrosion/chemical resistant, weather resistant, easy to drill and cut, lightweight, high strength, and flame retardant (Class 1 Rating) in accordance with ASTM E-84. All composite materials shall have UV light inhibiting chemical additives to resist degradation from ultra violet light. All composite materials shall have halogen-free properties.
- KCA GRP Cable Ladders and accessories can be manufactured with anti-static properties upon request.

Design & Deflection

- E-Line KCA GRP Glass Reinforced Polyester cable ladder sections are designed and manufactured to achieve the loading requirements of the NEMA VE-1 and IEC 61537, and are available in various load and span performances up to 6 meters span
- All reported results are based on uniformly distributed static loads, single-span configuration for NEMA VE-1 load testing and multispan configuration for IEC 61537 load testing.
- 100 mm height KCA GRP ladders are NEMA 12C classified and 150 mm height KCA GRP ladders are NEMA 20C classified.
- All load results detailed in this section have been derived from testing 900mm wide sections of KCA GRP cable ladders in the various configurations.
- The KCA GRP Cable Ladder must have connection holes drilled at both ends.
- The rungs must be secured to the side walls with locking clips.
- The exterior color of the product will be standard RAL 7032 beige. It should be possible to produce it in a different RAL code color upon request. Minimal variations in the color tone of the product may be observed.

Part 2 - Products

Specifications For EAE Cable Ladder E-Line KCA GRP/GRP Series Cable Ladder

1. Cable Ladder Design

- Cable ladder shall be designed and manufactured by EAE ELEKTRİK A.S.
- They shall be complete with installation and mounting accessories of KCA GRP such as bends, tees, crosses, reducers, splices, tray covers and other necessary hardware, fastener etc. defined in the latest NEMA FG-1 standard (U.S.A/Canada) and latest IEC 61537 standard (International standard).
- Specially designed and manufactured cable ladder allows easy installation of cables which shall be free from burrs, projections, sharp edges inside where cables can be damaged.
- Special designed Pultruded C-shape Side Rails, Pultruded C-shape Rungs, and Pultruded Splice Plates shall be increased the strength of the cable ladder and allow support spacings up to 6 meters.

2. Manufacture and Dimensions

- KCA GRP Cable Ladders shall consist of two longitudinal members (side rails) with transverse members (rungs) via using clip-in composite item to the side rails.
- KCA GRP/GRP cable ladders are manufactured in metric SI units.
- Straight lengths shall be manufactured in 3-meters and 6-meters.
- Height. (Side Rail) Overall heights shall be 100mm, and 150mm (loading depths, shall be 75mm, and 125mm, respectively).
- Rung spacing producing 300mm as standard. Other rungs spacing are possible upon request;
- Various types of fittings are available for supporting horizontal and vertical directional cable route/size changes:
 - Horizontal fittings: elbows, tee, cross, middle-left-right reducers,
 - Vertical fittings: inside vertical elbow, outside vertical elbow, angle adjustable elbow
 - Standard Radius: R250, R300 and R600,
 - Standard angle for horizontal and vertical elbows: 45° and 90° (Other angles are possible upon request.).

3. Material Properties

KCA GRP Cable Ladders must be manufactured from "Glass Reinforced Polyester" material. The manufactured products must have the following properties and these properties must be declared and proven by type test reports obtained from an internationally accredited laboratory.

- Standard products are manufactured in accordance with UL94; V0 flame retardancy within 10 seconds.
- Products with F0 and M1 flame resistance, as specified in the NF F 16-101 standard, can be manufactured upon request.
- According to BS 476 part-7; they must be Class-1. (Flame spread length test)
- Must be Class-1 according to ASTM E-84. (Flame spread and smoke production test)
- According to ISO 4589-2, the "Limiting Oxygen Index" must be 28%. Can be produced at 45% upon request.
- DIN 4102-1 and be B1 class. (Dripping, smoke, and smoke temperature test when exposed to flame)
- Must be tested according to EN 60754 and be halogen-free. (The measurement of halogen formed when exposed to flame must be no more than 5 mg/g.)
- Must be tested according to EN 60695 and be resistant to the 950 °C glowing wire test.
- Must be tested according to ISO 4892-2 standard for UV resistance. (Tested for 60 days between -40°C and +85°C, no color change or material deterioration should be observed. This test simulates 10 years of UV exposure.)
- It must be tested and certified according to the EN 60068-2-1 standard (-75°C for 72 hours, with no physical changes observed at the end).
- It must be tested according to the ISO 62 standard (water absorption test).
- It must be tested and approved for ozone aging according to the ISO 1431-1 standard.
- Electrical conductivity must be measured according to the EN 60079-0 standard. (Standard products have insulating properties; anti-static products can be produced upon request.)
- Transport values must be tested and certified according to the IEC 61537 standard.
- Must be subjected to a minimum of 1500 hours of salt testing according to the ISO 9227 standard.
- Must be tested and approved according to the ASTM D 4385 standard (Visual defects).
- Must be tested and approved according to the TS EN 60243-1 standard (Dielectric test).
- Transport values must be tested and certified according to the UL 568 standard.

4. Covers

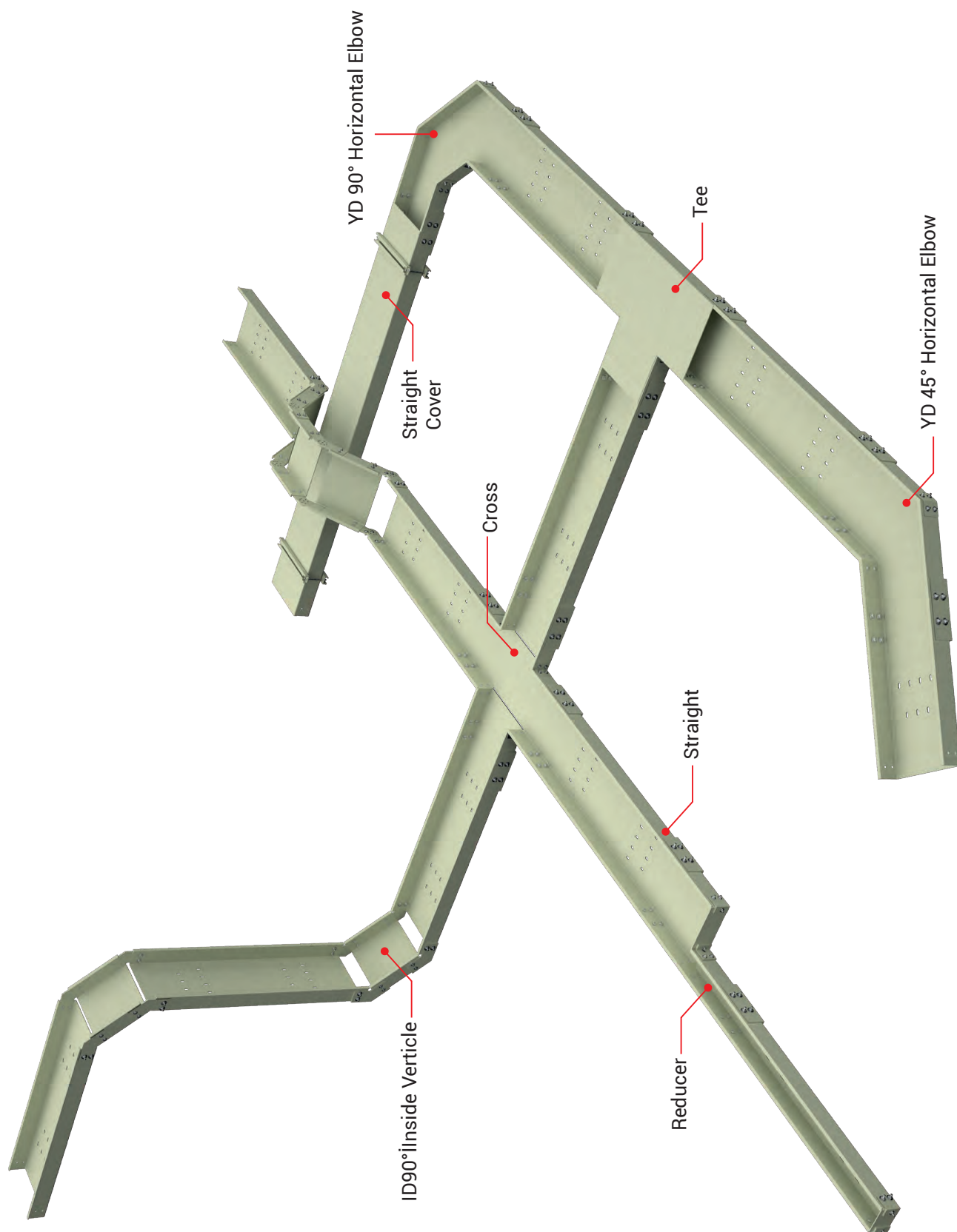
- Covers shall be constructed with a minimum thickness 3mm.
- All range of manufactured straight lengths and fittings shall be supplied with their covers upon request.
- Covers will be manufactured up to 600mm in width.
- Heavy duty omega type cover clamps shall be used for outdoor applications.

5. Accessories

- Accessories shall be furnished as required to protect, support and install the cable ladder system.
- Splice plates, expansion splice plates, horizontal and vertical adjustable couplers, vertical adjustable fitting, dividers, junction box plates as well as fixing fasteners are standard manufactured and supplied accessories by EAE.

6. Splice Plates

- Splice plates shall be fastened to the outside of the cable ladder side-rails.
- Bolts, nuts and washers shall be supplied with splice plates. Stainless Steel 316 as standard.
- Additional components should be manufactured from Glass Reinforced Polyester material or 316 (A4) grade stainless steel material.



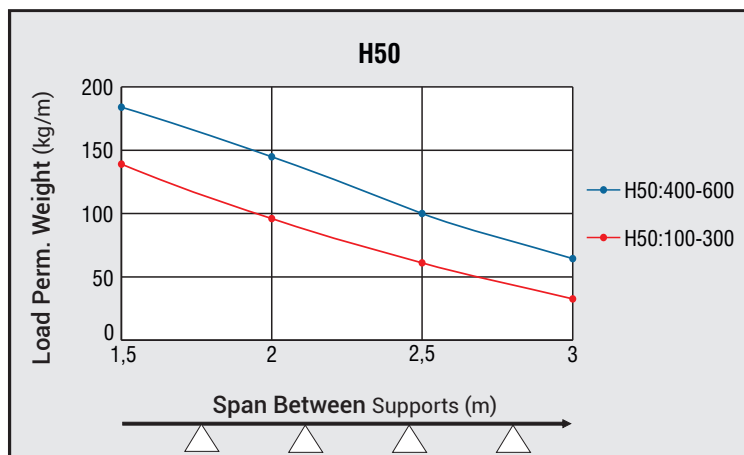
E-LINE CTA GRP

Straight Length

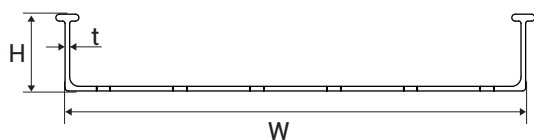
50 CTA GRP Glass Reinforced Polyester Cable Tray



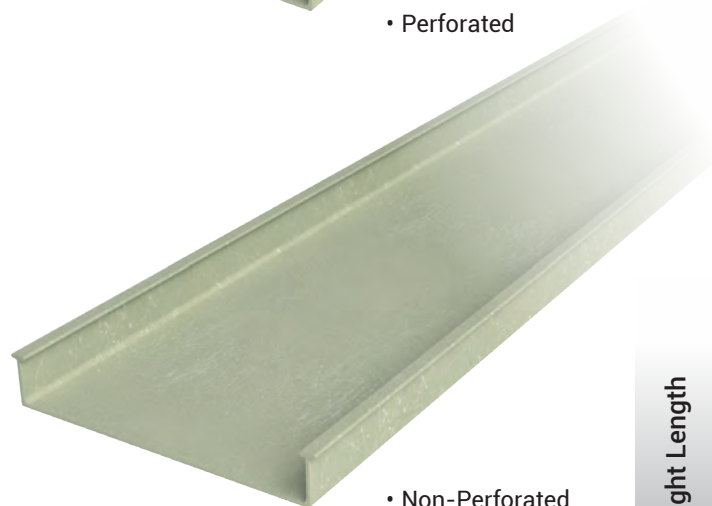
- Side Rail Height (H) : 50mm
- Widths (W) : 50mm, 100mm, 150mm, 200mm, 250mm, 300mm, 400mm, 450mm, 500mm, 600mm
- Standard Lengths (L) : 3 meters



- Safe working load values are based on continues beam test according to IEC 61537 standard.
- Please check Page-10 for effect of temperature on strength.



• Perforated



• Non-Perforated

Perforated		Non-Perforated		Height (mm)	Width (mm)	Length (m)	Thickness (mm)	Weight (kg/m)
Order Code	Description	Order Code	Description					
3304626	50 CTA GRP 050	3304684	50 CTA-D GRP 050	50	50	3m	3,0	0,76
3304638	50 CTA GRP 100	3304686	50 CTA-D GRP 100	50	100	3m	3,0	1,35
3304650	50 CTA GRP 150	3304690	50 CTA-D GRP 150	50	150	3m	3,0	1,55
3304663	50 CTA GRP 200	3304693	50 CTA-D GRP 200	50	200	3m	3,0	1,89
3304671	50 CTA GRP 250	3304694	50 CTA-D GRP 250	50	250	3m	3,0	2,10
3304677	50 CTA GRP 300	3304695	50 CTA-D GRP 300	50	300	3m	3,0	2,42
3304680	50 CTA GRP 400	3304696	50 CTA-D GRP 400	50	400	3m	4,5	4,23
3304681	50 CTA GRP 450	3304697	50 CTA-D GRP 450	50	450	3m	4,5	4,62
3304682	50 CTA GRP 500	3304699	50 CTA-D GRP 500	50	500	3m	4,5	5,03
3304683	50 CTA GRP 600	3304700	50 CTA-D GRP 600	50	600	3m	4,5	5,85

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Connectors : Glass Reinforced Polyester (GRP); SS316 stainless steel available upon request. (Page 63)
- Fasteners : 4 sets of SS316 M8x25 bolt sets (Page 67)

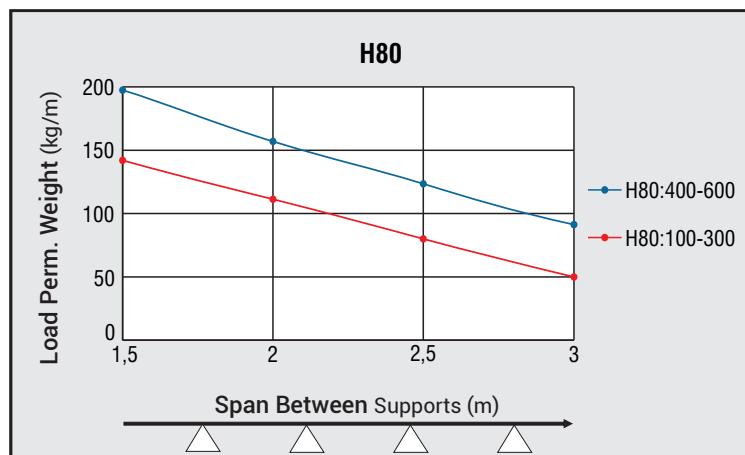
E-LINE CTA GRP

Straight Length

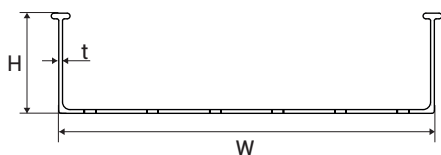
80 CTA GRP Glass Reinforced Polyester Cable Tray



- Side Rail Height (H) : 80mm
- Widths (W) : 100mm, 100mm, 150mm, 200mm, 250mm, 300mm, 400mm, 450mm, 500mm, 600mm
- Standard Lengths (L) : 3 meters



- Safe working load values are based on continues beam test according to IEC 61537 standard.
- Please check Page-10 for effect of temperature on strength.



• Perforated



• Non-Perforated

Perforated		Non-Perforated		Height (mm)	Width (mm)	Length (m)	Thickness (mm)	Weight (kg/m)
Order Code	Description	Order Code	Description					
3304701	80 CTA GRP 100	3304710	80 CTA-D GRP 100	80	100	3m	3,0	1,62
3306235	80 CTA GRP 150	3304711	80 CTA-D GRP 150	80	150	3m	3,0	1,89
3304703	80 CTA GRP 200	3304712	80 CTA-D GRP 200	80	200	3m	3,0	2,16
3304704	80 CTA GRP 250	3304713	80 CTA-D GRP 250	80	250	3m	3,0	2,43
3304705	80 CTA GRP 300	3304714	80 CTA-D GRP 300	80	300	3m	3,0	2,71
3304706	80 CTA GRP 400	3304715	80 CTA-D GRP 400	80	400	3m	4,5	4,72
3304707	80 CTA GRP 450	3304717	80 CTA-D GRP 450	80	450	3m	4,5	5,13
3304708	80 CTA GRP 500	3304719	80 CTA-D GRP 500	80	500	3m	4,5	5,54
3304709	80 CTA GRP 600	3304720	80 CTA-D GRP 600	80	600	3m	4,5	6,36

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Connectors : Glass Reinforced Polyester (GRP); SS316 stainless steel available upon request. (Page 63)
- Fasteners : 4 sets of SS316 M10x25 bolt sets or 4 sets of M10x40 bolt sets (Page 67)

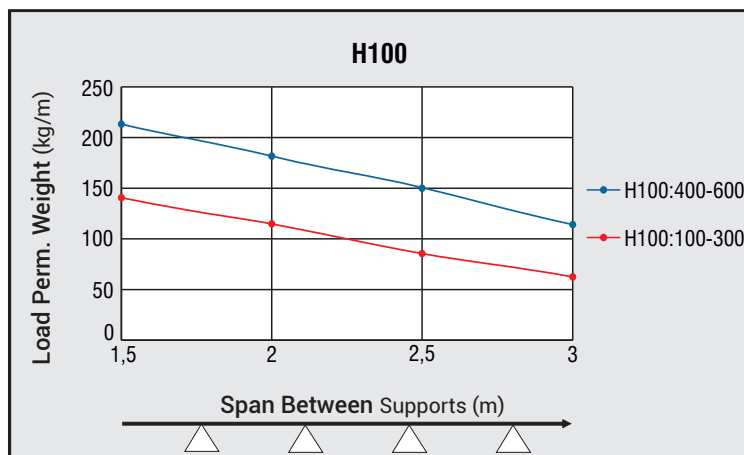
E-LINE CTA GRP

Straight Length

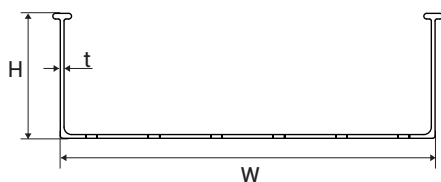
100 CTA GRP Glass Reinforced Polyester Cable Tray



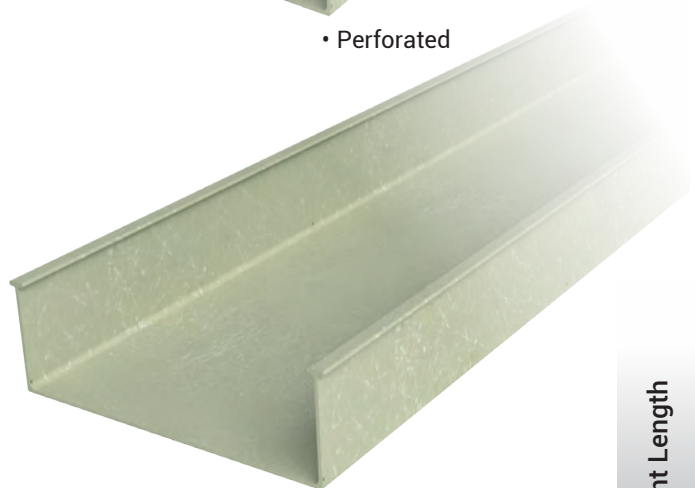
- Side Rail Height (H) : 100mm
- Widths (W) : 100mm, 150mm, 200mm, 250mm, 300mm, 400mm, 450mm, 500mm, 600mm
- Standard Lengths (L) : 3 meters



- Safe working load values are based on continues beam test according to IEC 61537 standard.
- Please check Page-10 for effect of temperature on strength.



• Perforated



• Non-Perforated

Perforated		Non-Perforated		Height (mm)	Width (mm)	Length (m)	Thickness (mm)	Weight (kg/m)
Order Code	Description	Order Code	Description					
3304721	100 CTA GRP 100	3304730	100 CTA-D GRP 100	100	100	3m	3,0	1,84
3304722	100 CTA GRP 150	3304731	100 CTA-D GRP 150	100	150	3m	3,0	2,11
3304723	100 CTA GRP 200	3304732	100 CTA-D GRP 200	100	200	3m	3,0	2,38
3304724	100 CTA GRP 250	3304733	100 CTA-D GRP 250	100	250	3m	3,0	2,66
3304725	100 CTA GRP 300	3304735	100 CTA-D GRP 300	100	300	3m	3,0	2,93
3304726	100 CTA GRP 400	3304736	100 CTA-D GRP 400	100	400	3m	4,5	5,05
3304727	100 CTA GRP 450	3304738	100 CTA-D GRP 450	100	450	3m	4,5	5,54
3304728	100 CTA GRP 500	3304739	100 CTA-D GRP 500	100	500	3m	4,5	5,87
3304729	100 CTA GRP 600	3304740	100 CTA-D GRP 600	100	600	3m	4,5	6,69

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Connectors : Glass Reinforced Polyester (GRP); SS316 stainless steel available upon request. (Page 63)
- Fasteners : 4 sets of SS316 M8x25 bolt sets (Page 67)

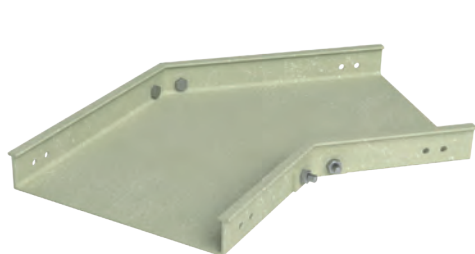
E-LINE CTA GRP

Fittings

YD 45° Horizontal Elbow (R300, R450, R600)



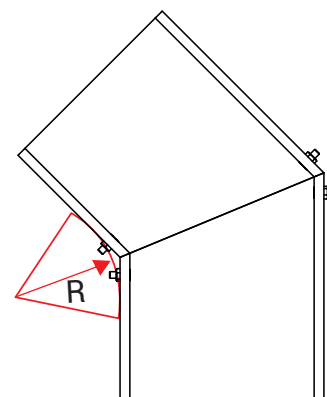
Produced by the pultrusion method. Shipped pre-assembled.



H50



H80
H100



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
50 CTA GRP 050 YD45°	50	50	3,0	3304741	3304774	3304807	0,67	0,80	0,94
50 CTA GRP 100 YD45°	50	100	3,0	3304742	3304775	3304808	0,83	1,00	1,15
50 CTA GRP 150 YD45°	50	150	3,0	3304743	3304776	3304809	0,93	1,20	1,38
50 CTA GRP 200 YD45°	50	200	3,0	3304744	3304777	3304810	1,19	1,41	1,63
50 CTA GRP 250 YD45°	50	250	3,0	3304745	3304778	3304811	1,37	1,63	1,89
50 CTA GRP 300 YD45°	50	300	3,0	3304746	3304779	3304812	1,57	1,86	2,18
50 CTA GRP 400 YD45°	50	400	4,5	3304747	3304780	3304813	2,82	3,37	3,84
50 CTA GRP 450 YD45°	50	450	4,5	3304748	3304781	3304814	3,16	3,77	4,38
50 CTA GRP 500 YD45°	50	500	4,5	3304750	3304782	3304815	3,52	4,19	4,85
50 CTA GRP 600 YD45°	50	600	4,5	3304751	3304783	3304816	4,35	5,13	5,45
80 CTA GRP 100 YD45°	80	100	3,0	3304753	3304784	3304817	1,20	1,41	1,60
80 CTA GRP 150 YD45°	80	150	3,0	3304754	3304785	3304818	1,29	1,61	1,84
80 CTA GRP 200 YD45°	80	200	3,0	3304755	3304786	3304819	1,57	1,83	2,10
80 CTA GRP 250 YD45°	80	250	3,0	3304756	3304787	3304822	1,77	2,06	2,36
80 CTA GRP 300 YD45°	80	300	3,0	3304757	3304788	3304823	1,97	2,30	2,63
80 CTA GRP 400 YD45°	80	400	4,5	3304758	3304790	3304824	3,33	3,95	4,48
80 CTA GRP 450 YD45°	80	450	4,5	3304759	3304791	3304826	3,68	4,36	5,04
80 CTA GRP 500 YD45°	80	500	4,5	3304760	3304792	3304827	4,05	4,79	5,52
80 CTA GRP 600 YD45°	80	600	4,5	3304762	3304794	3304828	4,91	5,75	6,52
100 CTA GRP 100 YD45°	100	100	3,0	3304763	3304795	3304829	1,33	1,57	1,80
100 CTA GRP 150 YD45°	100	150	3,0	3304764	3304797	3304830	1,53	1,79	2,04
100 CTA GRP 200 YD45°	100	200	3,0	3304766	3304798	3304831	1,72	2,01	2,30
100 CTA GRP 250 YD45°	100	250	3,0	3304767	3304799	3304832	1,92	2,24	2,56
100 CTA GRP 300 YD45°	100	300	3,0	3304768	3304801	3304833	2,13	2,49	2,84
100 CTA GRP 400 YD45°	100	400	4,5	3304769	3304803	3304834	3,56	4,23	4,79
100 CTA GRP 450 YD45°	100	450	4,5	3304771	3304804	3304835	3,92	4,64	5,36
100 CTA GRP 500 YD45°	100	500	4,5	3304772	3304805	3304836	4,30	5,08	5,85
100 CTA GRP 600 YD45°	100	600	4,5	3304773	3304806	3304837	5,17	6,06	6,87

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE CTA GRP

Fittings

YD 90° Horizontal Elbow (R300, R450, R600)



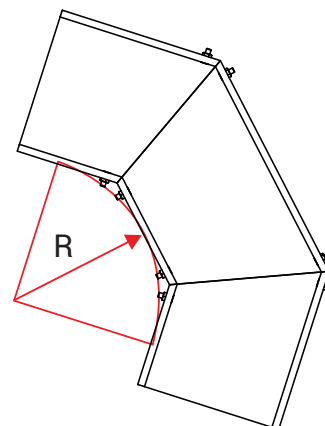
Produced by the pultrusion method. Shipped pre-assembled.



H50



H80
H100



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
50 CTA GRP 050 YD90°	50	50	3,0	3304838	3304867	3304897	1,16	1,40	1,65
50 CTA GRP 100 YD90°	50	100	3,0	3304839	3304868	3304898	1,41	1,74	2,05
50 CTA GRP 150 YD90°	50	150	3,0	3304840	3304869	3304899	1,71	2,10	2,40
50 CTA GRP 200 YD90°	50	200	3,0	3304841	3304870	3304900	1,99	2,47	2,92
50 CTA GRP 250 YD90°	50	250	3,0	3304842	3304871	3304901	2,31	2,84	3,39
50 CTA GRP 300 YD90°	50	300	3,0	3304843	3304873	3304903	2,68	3,21	3,89
50 CTA GRP 400 YD90°	50	400	4,5	3304844	3304874	3304905	4,78	5,85	6,92
50 CTA GRP 450 YD90°	50	400	4,5	3304845	3304875	3304906	5,43	6,57	7,74
50 CTA GRP 500 YD90°	50	500	4,5	3304846	3304876	3304907	6,08	7,31	8,64
50 CTA GRP 600 YD90°	50	600	4,5	3304847	3304877	3304908	7,46	8,95	10,44
80 CTA GRP 100 YD90°	80	100	3,0	3304848	3304878	3304909	2,08	2,50	2,89
80 CTA GRP 150 YD90°	80	150	3,0	3304849	3304880	3304910	2,40	2,88	3,35
80 CTA GRP 200 YD90°	80	200	3,0	3304850	3304881	3304911	2,69	3,26	3,79
80 CTA GRP 250 YD90°	80	200	3,0	3304851	3304882	3304912	3,02	3,64	4,28
80 CTA GRP 300 YD90°	80	300	3,0	3304852	3304883	3304913	3,41	4,01	4,79
80 CTA GRP 400 YD90°	80	400	4,5	3304853	3304884	3304914	5,71	6,91	8,10
80 CTA GRP 450 YD90°	80	400	4,5	3304854	3304885	3304915	6,39	7,64	8,94
80 CTA GRP 500 YD90°	80	500	4,5	3304855	3304886	3304916	7,05	8,40	9,86
80 CTA GRP 600 YD90°	80	600	4,5	3304856	3304887	3304917	8,47	10,09	11,7
100 CTA GRP 100 YD90°	100	100	3,0	3304857	3304888	3304918	2,31	2,79	3,23
100 CTA GRP 150 YD90°	100	150	3,0	3304858	3304889	3304919	2,64	3,18	3,71
100 CTA GRP 200 YD90°	100	200	3,0	3304859	3304890	3304920	2,94	3,57	4,16
100 CTA GRP 250 YD90°	100	250	3,0	3304860	3304891	3304921	3,28	3,61	4,65
100 CTA GRP 300 YD90°	100	300	3,0	3304861	3304892	3304922	3,68	4,33	5,17
100 CTA GRP 400 YD90°	100	400	4,5	3304862	3304893	3304924	6,11	7,39	8,67
100 CTA GRP 450 YD90°	100	450	4,5	3304863	3304894	3304925	6,80	8,13	9,52
100 CTA GRP 500 YD90°	100	500	4,5	3304864	3304895	3304926	7,48	8,91	10,46
100 CTA GRP 600 YD90°	100	600	4,5	3304865	3304896	3304927	8,93	10,63	12,32

Fittings

CTA GRP

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

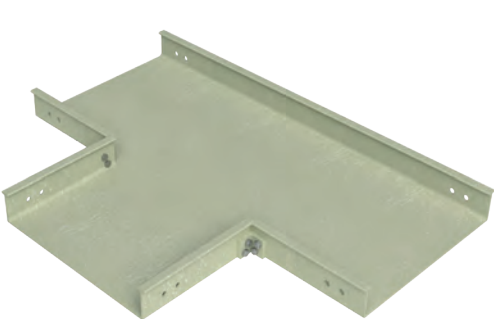
E-LINE CTA GRP

Fittings

YT Tee



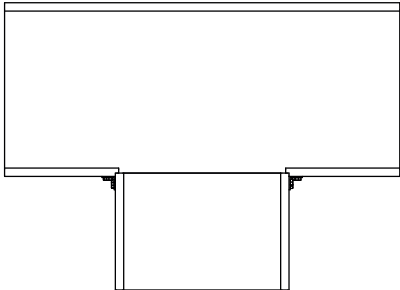
Produced by the pultrusion method. Shipped pre-assembled.



H50



H80-H100



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
50 CTA GRP 050 YT	50	50	3,0	3304928	0,83
50 CTA GRP 100 YT	50	100	3,0	3304929	1,06
50 CTA GRP 150 YT	50	150	3,0	3304930	1,32
50 CTA GRP 200 YT	50	200	3,0	3304932	1,61
50 CTA GRP 250 YT	50	200	3,0	3304934	1,93
50 CTA GRP 300 YT	50	300	3,0	3304935	2,27
50 CTA GRP 400 YT	50	400	4,5	3304936	4,33
50 CTA GRP 450 YT	50	400	4,5	3304938	4,96
50 CTA GRP 500 YT	50	500	4,5	3304939	5,64
50 CTA GRP 600 YT	50	600	4,5	3304940	7,12
80 CTA GRP 100 YT	80	100	3,0	3304942	1,39
80 CTA GRP 150 YT	80	150	3,0	3304943	1,66
80 CTA GRP 200 YT	80	200	3,0	3304944	1,96
80 CTA GRP 250 YT	80	200	3,0	3304945	2,28
80 CTA GRP 300 YT	80	300	3,0	3304946	2,63
80 CTA GRP 400 YT	80	400	4,5	3304947	4,85
80 CTA GRP 450 YT	80	400	4,5	3304948	5,49
80 CTA GRP 500 YT	80	500	4,5	3304949	6,18
80 CTA GRP 600 YT	80	600	4,5	3304950	7,68
100 CTA GRP 100 YT	100	100	3,0	3304951	1,61
100 CTA GRP 150 YT	100	150	3,0	3304952	1,89
100 CTA GRP 200 YT	100	200	3,0	3304953	2,19
100 CTA GRP 250 YT	100	200	3,0	3304954	2,52
100 CTA GRP 300 YT	100	300	3,0	3304955	2,88
100 CTA GRP 400 YT	100	400	4,5	3304956	5,19
100 CTA GRP 450 YT	100	400	4,5	3304957	5,85
100 CTA GRP 500 YT	100	500	4,5	3304958	6,54
100 CTA GRP 600 YT	100	600	4,5	3304959	8,06

- Material

: Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color

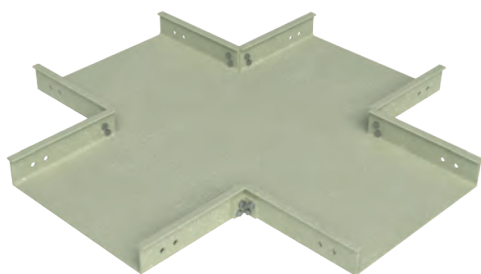
: RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE CTA GRP

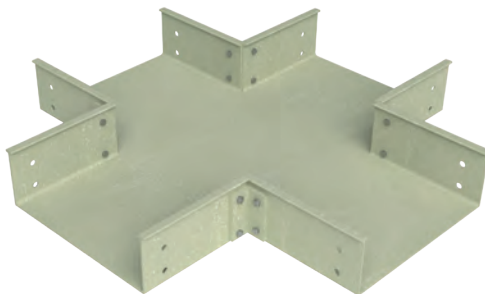
Fittings

AD Horizontal Cross Fitting

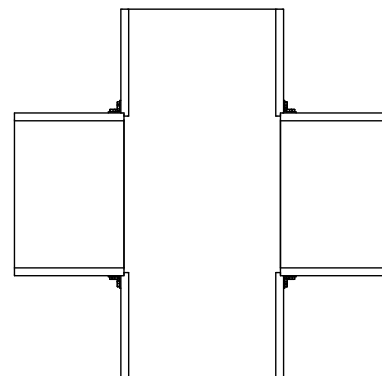
Produced by the pultrusion method. Shipped pre-assembled.



H50



H80-H100



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
50 CTA GRP 050 AD	50	50	3,0	3304960	1,20
50 CTA GRP 100 AD	50	100	3,0	3304961	1,47
50 CTA GRP 150 AD	50	150	3,0	3304962	1,71
50 CTA GRP 200 AD	50	200	3,0	3304963	2,10
50 CTA GRP 250 AD	50	200	3,0	3304964	2,40
50 CTA GRP 300 AD	50	300	3,0	3304966	2,84
50 CTA GRP 400 AD	50	400	4,5	3304967	5,20
50 CTA GRP 450 AD	50	400	4,5	3304968	5,81
50 CTA GRP 500 AD	50	500	4,5	3304969	6,64
50 CTA GRP 600 AD	50	600	4,5	3304970	8,24
80 CTA GRP 100 AD	80	100	3,0	3304972	1,96
80 CTA GRP 150 AD	80	150	3,0	3304973	2,20
80 CTA GRP 200 AD	80	200	3,0	3304974	2,59
80 CTA GRP 250 AD	80	200	3,0	3304975	2,89
80 CTA GRP 300 AD	80	300	3,0	3304977	3,33
80 CTA GRP 400 AD	80	400	4,5	3304978	5,83
80 CTA GRP 450 AD	80	400	4,5	3304979	6,44
80 CTA GRP 500 AD	80	500	4,5	3304980	7,27
80 CTA GRP 600 AD	80	600	4,5	3304981	8,87
100 CTA GRP 100 AD	100	100	3,0	3304982	2,29
100 CTA GRP 150 AD	100	150	3,0	3304983	2,53
100 CTA GRP 200 AD	100	200	3,0	3304984	2,92
100 CTA GRP 250 AD	100	200	3,0	3304986	3,22
100 CTA GRP 300 AD	100	300	3,0	3304987	3,66
100 CTA GRP 400 AD	100	400	4,5	3304988	6,26
100 CTA GRP 450 AD	100	400	4,5	3304989	6,86
100 CTA GRP 500 AD	100	500	4,5	3304990	7,69
100 CTA GRP 600 AD	100	600	4,5	3304991	9,29

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

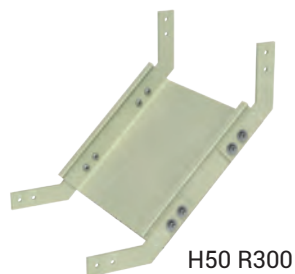
E-LINE CTA GRP

Fittings

ID90° Inside Vertical Elbow (R300, R450, R600)



Produced by the pultrusion method. Shipped pre-assembled.



H50 R300



H50 R450



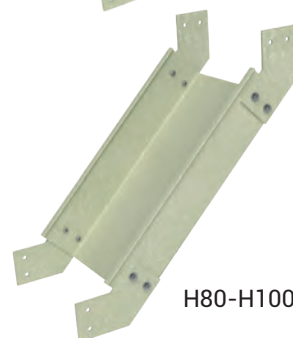
H50 R600



H80-H100 R300



H80-H100 R450



H80-H100 R600

Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
50 CTA GRP 050 ID90/R	50	50	3,0	3304992	3305024	3305059	0,57	0,67	0,77
50 CTA GRP 100 ID90/R	50	100	3,0	3304993	3305025	3305060	0,63	0,79	0,96
50 CTA GRP 150 ID90/R	50	150	3,0	3304994	3305027	3305062	0,70	0,90	1,09
50 CTA GRP 200 ID90/R	50	200	3,0	3304995	3305028	3305063	0,77	1,00	1,23
50 CTA GRP 250 ID90/R	50	250	3,0	3304996	3305029	3305064	0,84	1,11	1,37
50 CTA GRP 300 ID90/R	50	300	3,0	3304998	3305031	3305065	0,91	1,21	1,51
50 CTA GRP 400 ID90/R	50	400	4,5	3304999	3305032	3305067	1,38	1,92	2,45
50 CTA GRP 450 ID90/R	50	450	4,5	3305000	3305033	3305068	1,48	2,07	2,66
50 CTA GRP 500 ID90/R	50	500	4,5	3305001	3305035	3305069	1,59	2,23	2,87
50 CTA GRP 600 ID90/R	50	600	4,5	3305002	3305036	3305071	1,80	2,54	3,29
80 CTA GRP 100 ID90/R	80	100	3,0	3305003	3305038	3305072	0,89	1,09	1,29
80 CTA GRP 150 ID90/R	80	150	3,0	3305004	3305039	3305073	0,96	1,19	1,43
80 CTA GRP 200 ID90/R	80	200	3,0	3305005	3305040	3305074	1,03	1,30	1,57
80 CTA GRP 250 ID90/R	80	250	3,0	3305006	3305041	3305075	1,09	1,40	1,71
80 CTA GRP 300 ID90/R	80	300	3,0	3305007	3305042	3305076	1,16	1,51	1,85
80 CTA GRP 400 ID90/R	80	400	4,5	3305009	3305043	3305077	1,68	2,27	2,87
80 CTA GRP 450 ID90/R	80	450	4,5	3305010	3305045	3305078	1,78	2,43	3,08
80 CTA GRP 500 ID90/R	80	500	4,5	3305011	3305046	3305079	1,88	2,59	3,29
80 CTA GRP 600 ID90/R	80	600	4,5	3305012	3305048	3305081	2,09	2,90	3,71
100 CTA GRP 100 ID90/R	100	100	3,0	3305013	3305049	3305082	1,10	1,33	1,56
100 CTA GRP 150 ID90/R	100	150	3,0	3305014	3305050	3305083	1,17	1,43	1,6
100 CTA GRP 200 ID90/R	100	200	3,0	3305016	3305052	3305084	1,24	1,54	1,70
100 CTA GRP 250 ID90/R	100	250	3,0	3305017	3305053	3305089	1,31	1,64	1,98
100 CTA GRP 300 ID90/R	100	300	3,0	3305018	3305054	3305091	1,37	1,74	2,12
100 CTA GRP 400 ID90/R	100	400	4,5	3305019	3305055	3305092	1,91	2,55	3,19
100 CTA GRP 450 ID90/R	100	450	4,5	3305020	3305056	3305093	2,02	2,71	3,40
100 CTA GRP 500 ID90/R	100	500	4,5	3305021	3305057	3305094	2,12	2,87	3,61
100 CTA GRP 600 ID90/R	100	600	4,5	3305022	3305058	3305095	2,33	3,18	4,03

- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

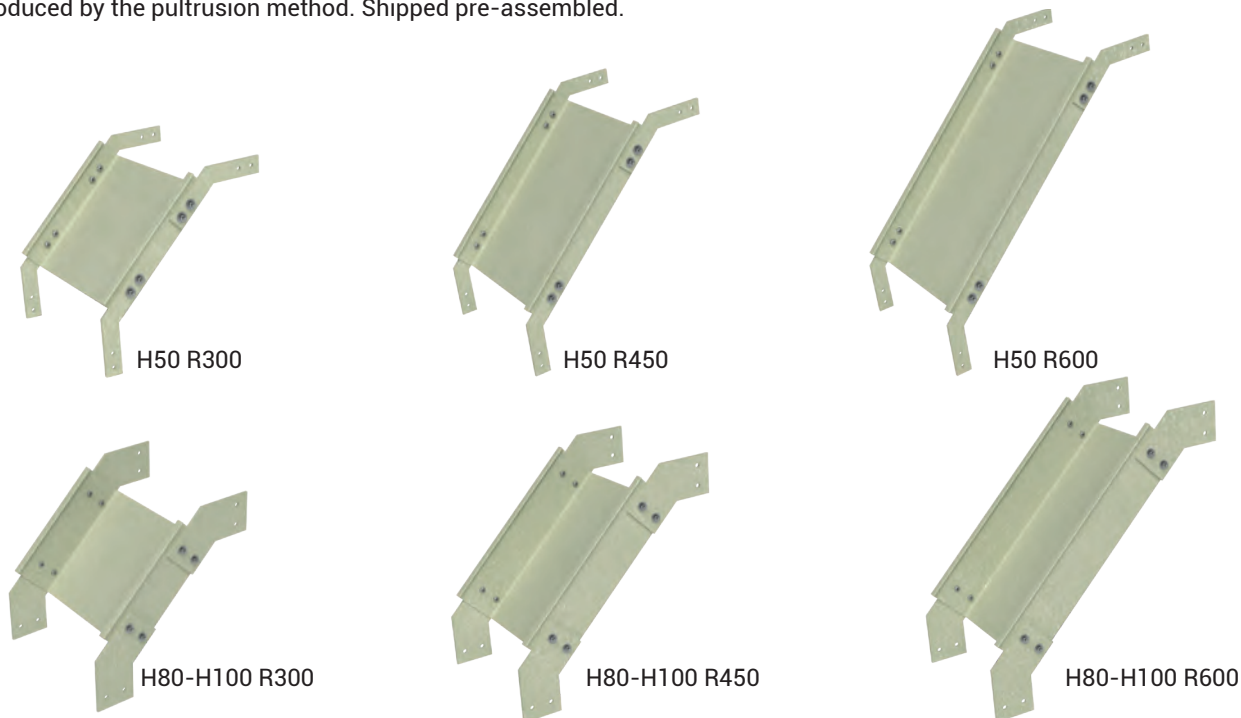
E-LINE CTA GRP

Fittings

DD90° Outside Vertical Elbow (R300, R450, R600)



Produced by the pultrusion method. Shipped pre-assembled.



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
50 CTA GRP 050 DD90/R	50	50	3,0	3305096	3305127	3305162	0,57	0,67	0,77
50 CTA GRP 100 DD90/R	50	100	3,0	3305097	3305128	3305163	0,63	0,79	0,96
50 CTA GRP 150 DD90/R	50	150	3,0	3305098	3305129	3305164	0,70	0,90	1,09
50 CTA GRP 200 DD90/R	50	200	3,0	3305099	3305130	3305165	0,77	1,00	1,23
50 CTA GRP 250 DD90/R	50	250	3,0	3305100	3305132	3305167	0,84	1,11	1,37
50 CTA GRP 300 DD90/R	50	300	3,0	3305101	3305134	3305168	0,91	1,21	1,51
50 CTA GRP 400 DD90/R	50	400	4,5	3305102	3305135	3305169	1,38	1,92	2,45
50 CTA GRP 450 DD90/R	50	450	4,5	3305103	3305136	3305170	1,48	2,07	2,66
50 CTA GRP 500 DD90/R	50	500	4,5	3305105	3305137	3305171	1,59	2,23	2,87
50 CTA GRP 600 DD90/R	50	600	4,5	3305106	3305138	3305173	1,80	2,54	3,29
80 CTA GRP 100 DD90/R	80	100	3,0	3305107	3305139	3305174	0,89	1,09	1,29
80 CTA GRP 150 DD90/R	80	150	3,0	3305109	3305140	3305176	0,96	1,19	1,43
80 CTA GRP 200 DD90/R	80	200	3,0	3305110	3305141	3305177	1,03	1,30	1,57
80 CTA GRP 250 DD90/R	80	250	3,0	3305111	3305142	3305178	1,09	1,30	1,71
80 CTA GRP 300 DD90/R	80	300	3,0	3305112	3305143	3305179	1,16	1,40	1,85
80 CTA GRP 400 DD90/R	80	400	4,5	3305113	3305147	3305180	1,68	2,27	2,87
80 CTA GRP 450 DD90/R	80	450	4,5	3305114	3305149	3305181	1,78	2,43	3,08
80 CTA GRP 500 DD90/R	80	500	4,5	3305115	3305150	3305183	1,88	2,59	3,29
80 CTA GRP 600 DD90/R	80	600	4,5	3305116	3305151	3305184	2,09	2,90	3,71
100 CTA GRP 100 DD90/R	100	100	3,0	3305117	3305152	3305185	1,10	1,33	3,71
100 CTA GRP 150 DD90/R	100	150	3,0	3305118	3305154	3305186	1,17	1,43	1,70
100 CTA GRP 200 DD90/R	100	200	3,0	3305120	3305155	3305188	1,24	1,54	1,84
100 CTA GRP 250 DD90/R	100	250	3,0	3305121	3305156	3305189	1,31	1,64	1,98
100 CTA GRP 300 DD90/R	100	300	3,0	3305122	3305157	3305191	1,37	1,74	2,12
100 CTA GRP 400 DD90/R	100	400	4,5	3305123	3305158	3305193	1,91	2,55	3,19
100 CTA GRP 450 DD90/R	100	450	4,5	3305124	3305159	3305194	2,02	2,71	3,40
100 CTA GRP 500 DD90/R	100	500	4,5	3305125	3305160	3305195	2,12	2,87	3,61
100 CTA GRP 600 DD90/R	100	600	4,5	3305126	3305161	3305196	2,33	3,18	4,03

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

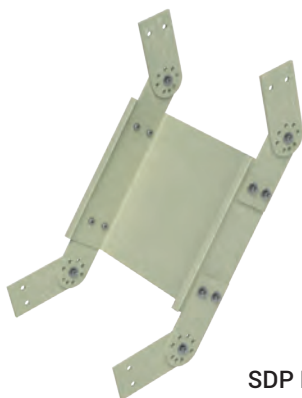
E-LINE CTA GRP

Fittings

SDP Single Vertical Adjustable Fitting



Produced by the pultrusion method. Shipped pre-assembled.



SDP ID



SDP DD

Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
50 CTA GRP 050 SDP	50	50	3,0	3305689	0,69
50 CTA GRP 100 SDP	50	100	3,0	3305690	0,76
50 CTA GRP 150 SDP	50	150	3,0	3305691	0,83
50 CTA GRP 200 SDP	50	200	3,0	3305692	0,90
50 CTA GRP 250 SDP	50	200	3,0	3305693	0,97
50 CTA GRP 300 SDP	50	300	3,0	3305694	1,04
50 CTA GRP 400 SDP	50	400	4,5	3305695	1,51
50 CTA GRP 450 SDP	50	400	4,5	3305697	1,61
50 CTA GRP 500 SDP	50	500	4,5	3305698	1,72
50 CTA GRP 600 SDP	50	600	4,5	3305699	1,93
80 CTA GRP 100 SDP	80	100	3,0	3305701	1,14
80 CTA GRP 150 SDP	80	150	3,0	3305702	1,21
80 CTA GRP 200 SDP	80	200	3,0	3305703	1,28
80 CTA GRP 250 SDP	80	200	3,0	3305704	1,35
80 CTA GRP 300 SDP	80	300	3,0	3305705	1,42
80 CTA GRP 400 SDP	80	400	4,5	3305706	1,93
80 CTA GRP 450 SDP	80	400	4,5	3305707	2,03
80 CTA GRP 500 SDP	80	500	4,5	3305708	2,14
80 CTA GRP 600 SDP	80	600	4,5	3305709	2,35
100 CTA GRP 100 SDP	100	100	3,0	3305710	1,54
100 CTA GRP 150 SDP	100	150	3,0	3305711	1,61
100 CTA GRP 200 SDP	100	200	3,0	3305712	1,68
100 CTA GRP 250 SDP	100	200	3,0	3305713	1,75
100 CTA GRP 300 SDP	100	300	3,0	3305714	1,82
100 CTA GRP 400 SDP	100	400	4,5	3305715	2,36
100 CTA GRP 450 SDP	100	400	4,5	3305716	2,46
100 CTA GRP 500 SDP	100	500	4,5	3305717	2,56
100 CTA GRP 600 SDP	100	600	4,5	3305718	2,77

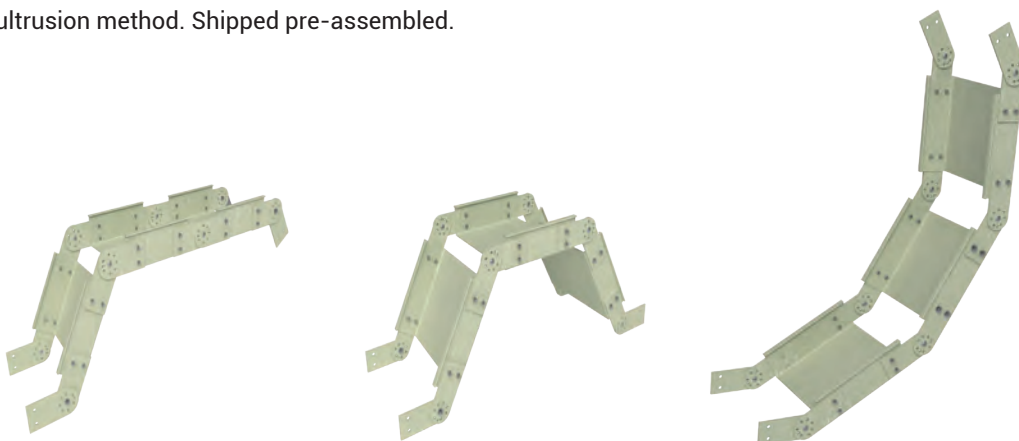
- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE CTA GRP

Fittings

SDM Multiple Vertical Adjustable Fitting

Produced by the pultrusion method. Shipped pre-assembled.



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
50 CTA GRP 050 SDM	50	50	3,0	3305719	1,68
50 CTA GRP 100 SDM	50	100	3,0	3305720	1,90
50 CTA GRP 150 SDM	50	150	3,0	3305721	2,11
50 CTA GRP 200 SDM	50	200	3,0	3305722	2,32
50 CTA GRP 250 SDM	50	200	3,0	3305723	2,53
50 CTA GRP 300 SDM	50	300	3,0	3305725	2,74
50 CTA GRP 400 SDM	50	400	4,5	3305726	4,15
50 CTA GRP 450 SDM	50	400	4,5	3305727	4,46
50 CTA GRP 500 SDM	50	500	4,5	3305729	4,77
50 CTA GRP 600 SDM	50	600	4,5	3305730	5,40
80 CTA GRP 100 SDM	80	100	3,0	3305731	2,74
80 CTA GRP 150 SDM	80	150	3,0	3305732	2,95
80 CTA GRP 200 SDM	80	200	3,0	3305733	3,16
80 CTA GRP 250 SDM	80	200	3,0	3305734	3,37
80 CTA GRP 300 SDM	80	300	3,0	3305735	3,58
80 CTA GRP 400 SDM	80	400	4,5	3305736	5,11
80 CTA GRP 450 SDM	80	400	4,5	3305737	5,42
80 CTA GRP 500 SDM	80	500	4,5	3305738	5,74
80 CTA GRP 600 SDM	80	600	4,5	3305739	6,36
100 CTA GRP 100 SDM	100	100	3,0	3305740	3,57
100 CTA GRP 150 SDM	100	150	3,0	3305741	3,77
100 CTA GRP 200 SDM	100	200	3,0	3305742	3,98
100 CTA GRP 250 SDM	100	200	3,0	3305743	4,19
100 CTA GRP 300 SDM	100	300	3,0	3305744	4,40
100 CTA GRP 400 SDM	100	400	4,5	3305747	6,02
100 CTA GRP 450 SDM	100	400	4,5	3305748	6,33
100 CTA GRP 500 SDM	100	500	4,5	3305749	6,64
100 CTA GRP 600 SDM	100	600	4,5	3305750	7,27

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

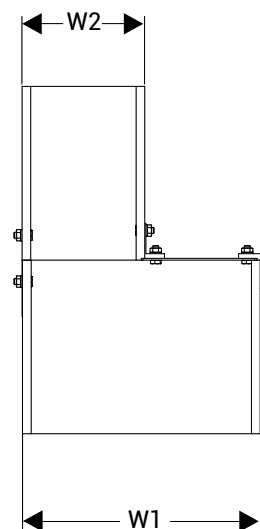
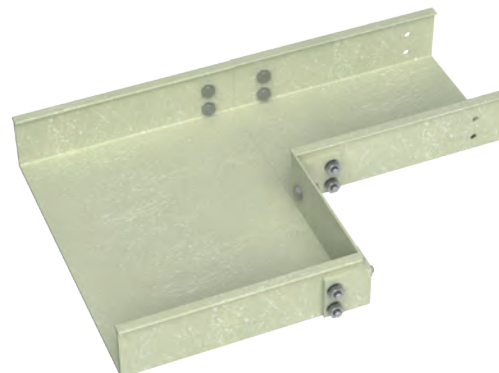
E-LINE CTA GRP

Fittings

LR Reducer Left



W1 (mm)	W2 (mm)	Description	Order Code			Weight (kg/pcs)		
			↑50	↑80	↑100	↑50	↑80	↑100
100	50	CTA GRP 100/050 LR	3305198	-	-	0,84	-	-
150		CTA GRP 150/050 LR	3305200	-	-	0,93	-	-
200		CTA GRP 200/050 LR	3305203	-	-	1,03	-	-
250		CTA GRP 250/050 LR	3305209	-	-	1,12	-	-
300		CTA GRP 300/050 LR	3305215	-	-	1,22	-	-
400		CTA GRP 400/050 LR	3305222	-	-	1,80	-	-
450		CTA GRP 450/050 LR	3305230	-	-	1,94	-	-
500		CTA GRP 500/050 LR	3305239	-	-	2,07	-	-
600		CTA GRP 600/050 LR	3305251	-	-	2,34	-	-
150	100	CTA GRP 150/100 LR	3305199	3305253	3305297	1,00	1,31	1,50
200		CTA GRP 200/100 LR	3305201	3305254	3305298	1,09	1,41	1,61
250		CTA GRP 250/100 LR	3305204	3305259	3305300	1,19	1,52	1,71
300		CTA GRP 300/100 LR	3305210	3305263	3305304	1,28	1,62	1,82
400		CTA GRP 400/100 LR	3305216	3305267	3305308	1,87	2,27	2,52
450		CTA GRP 450/100 LR	3305224	3305272	3305314	2,01	2,42	2,67
500		CTA GRP 500/100 LR	3305231	3305279	3305322	2,14	2,56	2,82
600		CTA GRP 600/100 LR	3305240	3305288	3305331	2,41	2,85	3,11
200	150	CTA GRP 200/150 LR	3305202	3305256	3305299	1,16	1,47	1,66
250		CTA GRP 250/150 LR	3305205	3305260	3305301	1,26	1,58	1,77
300		CTA GRP 300/150 LR	3305211	3305264	3305305	1,35	1,68	1,88
400		CTA GRP 400/150 LR	3305217	3305268	3305309	1,94	2,33	2,57
450		CTA GRP 450/150 LR	3305225	3305273	3305315	2,07	2,47	2,72
500		CTA GRP 500/150 LR	3305232	3305281	3305323	2,21	2,62	2,87
600		CTA GRP 600/150 LR	3305241	3305289	3305332	2,48	2,90	3,17
250	200	CTA GRP 250/200 LR	3305207	3305262	3305303	1,32	1,63	1,82
300		CTA GRP 300/200 LR	3305212	3305265	3305306	1,42	1,74	1,93
400		CTA GRP 400/200 LR	3305218	3305269	3305310	2,00	2,39	2,62
450		CTA GRP 450/200 LR	3305226	3305274	3305317	2,14	2,53	2,77
500		CTA GRP 500/200 LR	3305233	3305283	3305324	2,27	2,68	2,92
600		CTA GRP 600/200 LR	3305242	3305290	3305334	2,54	2,96	3,22
300	250	CTA GRP 300/250 LR	3305213	3305266	3305307	1,48	1,80	1,98
400		CTA GRP 400/250 LR	3305219	3305270	3305311	2,07	2,45	2,68
450		CTA GRP 450/250 LR	3305227	3305275	3305318	2,21	2,59	2,82
500		CTA GRP 500/250 LR	3305234	3305284	3305326	2,34	2,73	2,97
600		CTA GRP 600/250 LR	3305243	3305291	3305335	2,61	3,02	3,27
400	300	CTA GRP 400/300 LR	3305220	3305271	3305313	2,14	2,51	2,73
450		CTA GRP 450/300 LR	3305228	3305277	3305319	2,27	2,65	2,88
500		CTA GRP 500/300 LR	3305235	3305285	3305327	2,41	2,79	3,02
600		CTA GRP 600/300 LR	3305245	3305292	3305336	2,68	3,08	3,32
450	400	CTA GRP 450/400 LR	3305229	3305278	3305320	2,81	3,21	3,46
500		CTA GRP 500/400 LR	3305236	3305286	3305328	2,94	3,36	3,61
600		CTA GRP 600/400 LR	3305246	3305293	3305337	3,21	3,64	3,91
500	450	CTA GRP 500/450 LR	3305237	3305287	3305330	3,05	3,46	3,71
600		CTA GRP 600/450 LR	3305250	3305294	3305339	3,32	3,74	3,71
600	500	CTA GRP 600/500 LR	3305252	3305295	3305340	3,42	3,84	4,10



- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

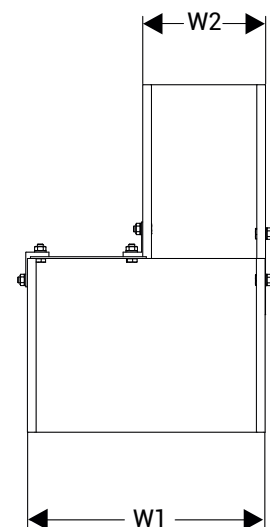
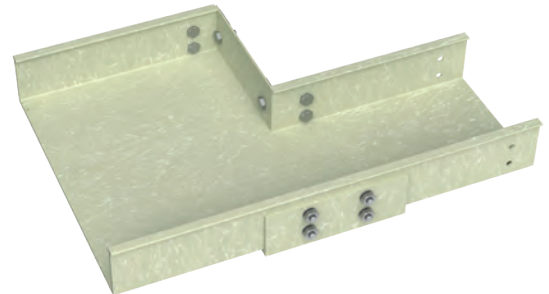
E-LINE CTA GRP

Fittings

RR Reducer Right



W1 (mm)	W2 (mm)	Description	Order Code			Weight (kg/pcs)		
			↑50	↑80	↑100	↑50	↑80	↑100
100	50	CTA GRP 100/050 RR	3305341	-	-	0,84	-	-
150		CTA GRP 150/050 RR	3305343	-	-	0,93	-	-
200		CTA GRP 200/050 RR	3305346	-	-	1,03	-	-
250		CTA GRP 250/050 RR	3305443	-	-	1,12	-	-
300		CTA GRP 300/050 RR	3305448	-	-	1,22	-	-
400		CTA GRP 400/050 RR	3305457	-	-	1,80	-	-
450		CTA GRP 450/050 RR	3305464	-	-	1,94	-	-
500		CTA GRP 500/050 RR	3305472	-	-	2,07	-	-
600		CTA GRP 600/050 RR	3305502	-	-	2,34	-	-
150	100	CTA GRP 150/100 RR	3305342	3305504	3305540	1,00	1,31	1,50
200		CTA GRP 200/100 RR	3305344	3305505	3305542	1,09	1,41	1,61
250		CTA GRP 250/100 RR	3305347	3305507	3305544	1,19	1,52	1,71
300		CTA GRP 300/100 RR	3305444	3305510	3305549	1,28	1,62	1,82
400		CTA GRP 400/100 RR	3305451	3305514	3305553	1,87	2,27	2,52
450		CTA GRP 450/100 RR	3305458	3305519	3305558	2,01	2,42	2,67
500		CTA GRP 500/100 RR	3305465	3305525	3305564	2,14	2,56	2,82
600		CTA GRP 600/100 RR	3305473	3305532	3305571	2,41	2,85	3,11
200	150	CTA GRP 200/150 RR	3305345	3305506	3305543	1,16	1,47	1,66
250		CTA GRP 250/150 RR	3305348	3305508	3305545	1,26	1,58	1,77
300		CTA GRP 300/150 RR	3305445	3305511	3305550	1,35	1,68	1,88
400		CTA GRP 400/150 RR	3305452	3305515	3305554	1,94	2,33	2,57
450		CTA GRP 450/150 RR	3305459	3305520	3305559	2,07	2,47	2,72
500		CTA GRP 500/150 RR	3305466	3305526	3305565	2,21	2,62	2,87
600		CTA GRP 600/150 RR	3305474	3305533	3305572	2,48	2,90	3,17
250	200	CTA GRP 250/200 RR	3305442	3305509	3305547	1,32	1,63	1,82
300		CTA GRP 300/200 RR	3305446	3305512	3305551	1,42	1,74	1,93
400		CTA GRP 400/200 RR	3305454	3305516	3305555	2,00	2,39	2,62
450		CTA GRP 450/200 RR	3305460	3305521	3305560	2,14	2,53	2,77
500		CTA GRP 500/200 RR	3305467	3305527	3305566	2,27	2,68	2,92
600		CTA GRP 600/200 RR	3305475	3305534	3305573	2,54	2,96	3,22
300	250	CTA GRP 300/250 RR	3305447	3305513	3305552	1,48	1,80	1,98
400		CTA GRP 400/250 RR	3305455	3305517	3305556	2,07	2,45	2,68
450		CTA GRP 450/250 RR	3305461	3305522	3305561	2,21	2,59	2,82
500		CTA GRP 500/250 RR	3305468	3305528	3305567	2,34	2,73	2,97
600		CTA GRP 600/250 RR	3305476	3305535	3305575	2,61	3,02	3,27
400	300	CTA GRP 400/300 RR	3305456	3305518	3305557	2,14	2,51	2,73
450		CTA GRP 450/300 RR	3305462	3305523	3305562	2,27	2,65	2,88
500		CTA GRP 500/300 RR	3305469	3305529	3305568	2,41	2,79	3,02
600		CTA GRP 600/300 RR	3305477	3305536	3305576	2,68	3,08	3,32
450	400	CTA GRP 450/400 RR	3305463	3305524	3305563	2,81	3,21	3,46
500		CTA GRP 500/400 RR	3305470	3305530	3305569	2,94	3,36	3,61
600		CTA GRP 600/400 RR	3305478	3305537	3305577	3,21	3,64	3,91
500	450	CTA GRP 500/450 RR	3305471	3305531	3305570	3,05	3,46	3,71
600		CTA GRP 600/450 RR	3305479	3305538	3305578	3,32	3,74	3,71
600	500	CTA GRP 600/500 RR	3305503	3305539	3305579	3,42	3,84	4,10



Fittings

CTA GRP

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

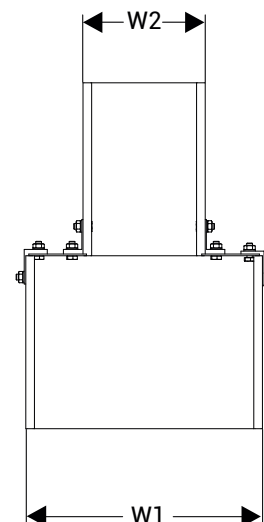
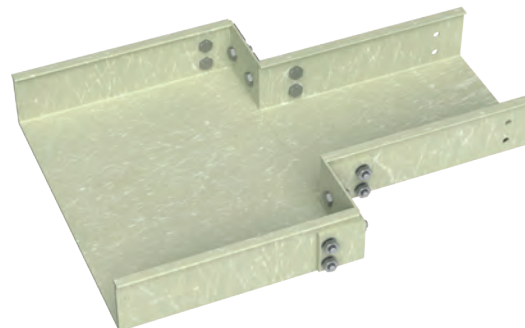
E-LINE CTA GRP

Fittings

MR Reducer Left



W1 (mm)	W2 (mm)	Description	Order Code			Weight (kg/pcs)		
			↑50	↑80	↑100	↑50	↑80	↑100
150	50	CTA GRP 150/050 MR	3305580	-	-	0,90	-	-
200		CTA GRP 200/050 MR	3305583	-	-	0,99	-	-
250		CTA GRP 250/050 MR	3305586	-	-	1,09	-	-
300		CTA GRP 300/050 MR	3305590	-	-	1,18	-	-
400		CTA GRP 400/050 MR	3305596	-	-	1,77	-	-
450		CTA GRP 450/050 MR	3305603	-	-	1,91	-	-
500		CTA GRP 500/050 MR	3305611	-	-	2,04	-	-
600		CTA GRP 600/050 MR	3305620	-	-	2,31	-	-
200	100	CTA GRP 200/100 MR	3305582	3305622	3305656	1,06	1,38	1,55
250		CTA GRP 250/100 MR	3305584	3305623	3305657	1,16	1,49	1,66
300		CTA GRP 300/100 MR	3305587	3305626	3305659	1,25	1,59	1,77
400		CTA GRP 400/100 MR	3305591	3305631	3305662	1,84	2,24	2,46
450		CTA GRP 450/100 MR	3305597	3305637	3305667	1,97	2,38	2,61
500		CTA GRP 500/100 MR	3305605	3305642	3305675	2,11	2,53	2,75
600		CTA GRP 600/100 MR	3305612	3305648	3305681	2,38	2,81	3,06
250	150	CTA GRP 250/150 MR	3305585	3305625	3305658	1,22	1,54	1,71
300		CTA GRP 300/150 MR	3305588	3305628	3305660	1,32	1,65	1,82
400		CTA GRP 400/150 MR	3305592	3305633	3305663	1,91	2,30	2,52
450		CTA GRP 450/150 MR	3305598	3305638	3305668	2,04	2,44	2,67
500		CTA GRP 500/150 MR	3305606	3305643	3305676	2,17	2,59	2,81
600		CTA GRP 600/150 MR	3305614	3305649	3305682	2,44	2,87	3,11
300	200	CTA GRP 300/200 MR	3305589	3305629	3305661	1,38	1,70	1,87
400		CTA GRP 400/200 MR	3305593	3305634	3305664	1,97	2,36	2,57
450		CTA GRP 450/200 MR	3305599	3305639	3305669	2,11	2,50	2,72
500		CTA GRP 500/200 MR	3305607	3305644	3305677	2,24	2,64	2,87
600		CTA GRP 600/200 MR	3305615	3305650	3305683	2,51	2,93	3,15
400	250	CTA GRP 400/250 MR	3305594	3305635	3305665	2,04	2,42	2,62
450		CTA GRP 450/250 MR	3305600	3305640	3305670	2,17	2,56	2,77
500		CTA GRP 500/250 MR	3305608	3305645	3305678	2,31	2,70	2,92
600		CTA GRP 600/250 MR	3305616	3305651	3305684	2,58	2,99	3,22
400	300	CTA GRP 400/300 MR	3305595	3305636	3305666	2,11	2,47	2,67
450		CTA GRP 450/300 MR	3305602	3305641	3305671	2,24	2,62	2,82
500		CTA GRP 500/300 MR	3305609	3305646	3305679	2,37	2,76	2,97
600		CTA GRP 600/300 MR	3305617	3305652	3305685	2,64	3,05	3,27
500	400	CTA GRP 500/400 MR	3305610	3305647	3305680	2,91	3,32	3,56
600		CTA GRP 600/400 MR	3305618	3305653	3305686	3,18	3,61	3,85
600		CTA GRP 600/450 MR	3305619	3305654	3305687	3,28	3,71	3,95
600		CTA GRP 600/500 MR	3305621	3305655	3305688	3,39	3,81	4,04



E-LINE CTA GRP

Covers

Straight Cover



Produced by the pultrusion method.

Description	Height (mm)	Width (mm)	Length (m)	Thickness (mm)	Order Code	Weight (kg/m)
KCA/CTA GRP K 050 / L=3m	15	50	3	3	3191138	0,43
CTA GRP K 100 / L=3m	15	100	3	3	3349333	0,79
CTA GRP K 150 / L=3m	15	150	3	3	3349366	1,07
CTA GRP K 200 / L=3m	15	200	3	3	3379782	1,35
CTA GRP K 250 / L=3m	15	200	3	3	3379784	1,64
CTA GRP K 300 / L=3m	15	300	3	3	3379785	1,92
CTA GRP K 400 / L=3m	15	400	3	3	3379786	2,47
CTA GRP K 450 / L=3m	15	400	3	3	3379787	2,75
CTA GRP K 500 / L=3m	15	500	3	3	3379789	3,04
CTA GRP K 600 / L=3m	15	600	3	3	3379790	3,60
CTA GRP K 750 / L=3m	15	100	3	4	3379793	6,50
CTA GRP K 900 / L=3m	15	150	3	5	3379794	8,00



Recommended Number of Cover Clamps

Required Quantity of Standard Cover Clamps						
Products	Standard Cover Clamp			Heavy Duty Cover Clamp		
Straight Lengths (3 meters)	6 pcs			3 pcs		
YD45° Horizontal Elbow	4 pcs			2 pcs		
YD90° Horizontal Elbow	6 pcs			3 pcs		
YT Tee	6 pcs			3 pcs		
AD Horizontal Cross Fitting	8 pcs			4 pcs		
ID 90° Inside Vertical Elbow	R300	R450	R600	R300	R450	R600
DD 90° Outside Vertical Elbow	2 pcs	4 pcs	6 pcs	1 pcs	2 pcs	3 pcs

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- **Cover Clamp** : For a 3-meter straight cover: 6 pieces of Standard Cover Clamps (Page 68) or 3 pieces of Heavy Duty Cover Clamps (Page 69)

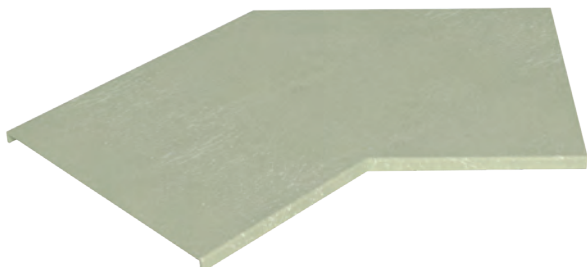
E-LINE CTA GRP

Covers

YD45° Horizontal Elbow Cover (R300, R450, R600)



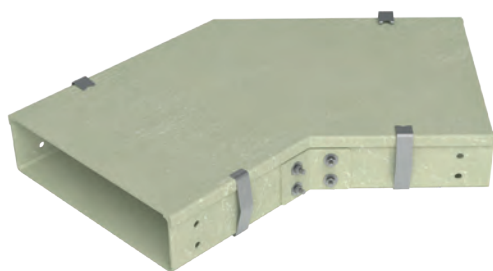
Produced by the pultrusion method.



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
CTA GRP K 050 YD45°	15	50	3,0	3191150	3191160	3191170	0,20	0,26	0,31
CTA GRP K 100 YD45°	15	100	3,0	3191151	3191161	3191171	0,37	0,48	0,57
CTA GRP K 150 YD45°	15	150	3,0	3191152	3191162	3191172	0,54	0,67	0,90
CTA GRP K 200 YD45°	15	200	3,0	3191153	3191163	3191173	0,71	0,87	1,03
CTA GRP K 250 YD45°	15	250	3,0	3191154	3191164	3191174	0,89	1,08	1,28
CTA GRP K 300 YD45°	15	300	3,0	3191155	3191165	3191175	1,08	1,32	1,55
CTA GRP K 400 YD45°	15	400	3,0	3191156	3191166	3191176	1,49	1,80	2,07
CTA GRP K 450 YD45°	15	450	3,0	3191157	3191167	3191177	1,71	2,06	2,42
CTA GRP K 500 YD45°	15	500	3,0	3191158	3191168	3191178	1,94	2,33	2,72
CTA GRP K 600 YD45°	15	600	3,0	3191159	3191169	3191179	2,48	2,94	3,37

Installation

- Standard Cover Clamp



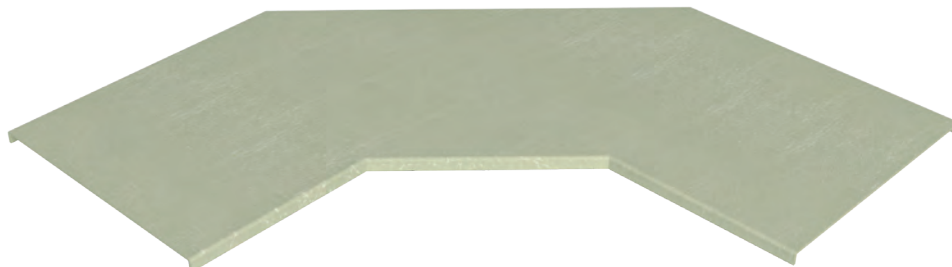
- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Cover Clamps : 4 pcs Standard Cover Clamp (Page-68) or 2 pcs Heavy Duty Cover Clamp (Page-69)

E-LINE CTA GRP

Covers

YD 90° Horizontal Elbow Cover (R300, R450, R600)

Produced by the pultrusion method.



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
CTA GRP K 050 YD90°	15	50	3,0	3191180	3191190	3191200	0,32	0,42	0,53
CTA GRP K 100 YD90°	15	100	3,0	3191181	3191191	3191201	0,60	0,80	0,99
CTA GRP K 150 YD90°	15	150	3,0	3191182	3191192	3191202	0,87	1,14	1,51
CTA GRP K 200 YD90°	15	200	3,0	3191183	3191193	3191203	1,14	1,49	1,82
CTA GRP K 250 YD90°	15	250	3,0	3191184	3191194	3191204	1,44	1,85	2,26
CTA GRP K 300 YD90°	15	300	3,0	3191185	3191195	3191205	1,78	2,20	2,74
CTA GRP K 400 YD90°	15	400	3,0	3191186	3191196	3191206	2,49	3,10	3,71
CTA GRP K 450 YD90°	15	450	3,0	3191187	3191197	3191207	2,90	3,56	4,24
CTA GRP K 500 YD90°	15	500	3,0	3191188	3191198	3191208	3,32	4,04	4,82
CTA GRP K 600 YD90°	15	600	3,0	3191189	3191199	3191209	4,21	5,10	5,99

Installation

- Standard Cover Clamp



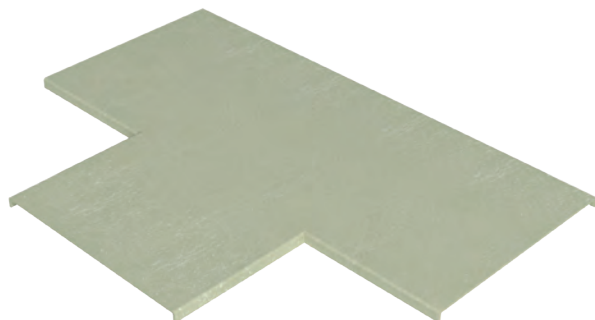
- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Cover Clamps : 6 pcs Standart Cover Clamp(Page-68) or 3 pcs Heavy Duty Cover Clamp (Page-69)

E-LINE CTA GRP

Covers

YT Horizontal Tee Cover

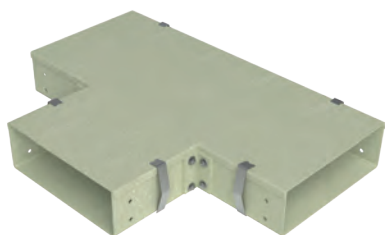
Produced by the pultrusion method.



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
CTA GRP K 050 YT	15	50	3	3191210	0,31
CTA GRP K 100 YT	15	100	3	3191211	0,57
CTA GRP K 150 YT	15	150	3	3191212	0,82
CTA GRP K 200 YT	15	200	3	3191213	1,11
CTA GRP K 250 YT	15	200	3	3191214	1,42
CTA GRP K 300 YT	15	300	3	3191215	1,76
CTA GRP K 400 YT	15	400	3	3191216	2,52
CTA GRP K 450 YT	15	400	3	3191217	2,95
CTA GRP K 500 YT	15	100	3	3191218	3,40
CTA GRP K 600 YT	15	150	3	3191219	4,39

Installation

- Standard Cover Clamp



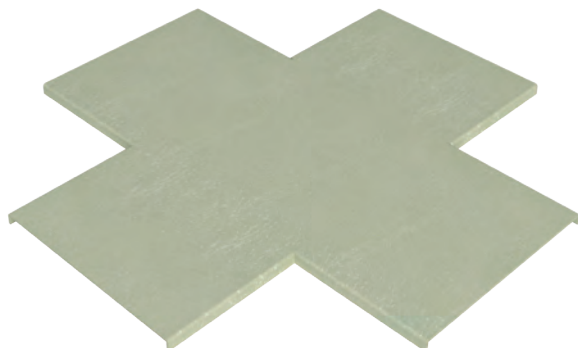
- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- **Cover Clamps** : 6 pcs Standart Cover Clamp(Page-68) or 3 pcs Heavy Duty Cover Clamp (Page-69)

E-LINE CTA GRP

Covers

AD Horizontal Cross Cover

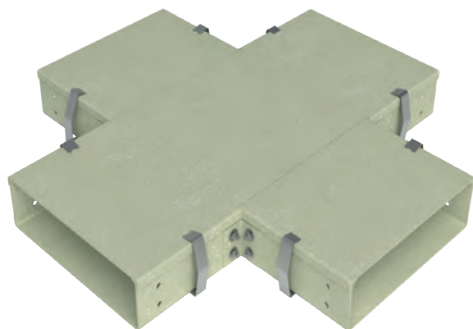
Produced by the pultrusion method.



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
CTA GRP K 050 AD	15	50	3	3191220	0,40
CTA GRP K 100 AD	15	100	3	3191221	0,73
CTA GRP K 150 AD	15	150	3	3191222	1,05
CTA GRP K 200 AD	15	200	3	3191223	1,39
CTA GRP K 250 AD	15	200	3	3191224	1,77
CTA GRP K 300 AD	15	300	3	3191225	2,17
CTA GRP K 400 AD	15	400	3	3191226	3,04
CTA GRP K 450 AD	15	400	3	3191227	3,53
CTA GRP K 500 AD	15	100	3	3191228	4,04
CTA GRP K 600 AD	15	150	3	3191229	5,15

Installation

- Standard Cover Clamp



- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- **Cover Clamps** : 8 pcs Standart Cover Clamp(Page-68) or 4 pcs Heavy Duty Cover Clamp (Page-69)

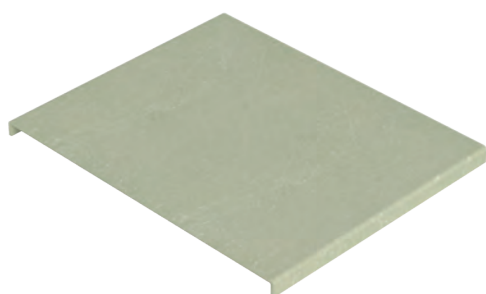
E-LINE CTA GRP

Covers

ID90° Inside Vertical Elbow and DD 90° Outside Vertical Elbow Cover



Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code			Weight (kg/pcs)		
				R300	R450	R600	R300	R450	R600
CTA GRP K 050 ID90/DD90/R	15	50	3,0	3191230	3191240	3191250	0,10	0,17	0,23
CTA GRP K 100 ID90/DD90/R	15	100	3,0	3191231	3191241	3191251	0,17	0,29	0,39
CTA GRP K 150 ID90/DD90/R	15	150	3,0	3191232	3191242	3191252	0,24	0,40	0,53
CTA GRP K 200 ID90/DD90/R	15	200	3,0	3191233	3191243	3191253	0,30	0,50	0,67
CTA GRP K 250 ID90/DD90/R	15	250	3,0	3191234	3191244	3191254	0,36	0,61	0,82
CTA GRP K 300 ID90/DD90/R	15	300	3,0	3191235	3191245	3191255	0,43	0,72	0,96
CTA GRP K 400 ID90/DD90/R	15	400	3,0	3191236	3191246	3191256	0,55	0,92	1,23
CTA GRP K 450 ID90/DD90/R	15	450	3,0	3191237	3191247	3191257	0,62	1,03	1,37
CTA GRP K 500 ID90/DD90/R	15	500	3,0	3191238	3191248	3191258	0,68	1,14	1,52
CTA GRP K 600 ID90/DD90/R	15	600	3,0	3191239	3191249	3191259	0,81	1,35	1,80



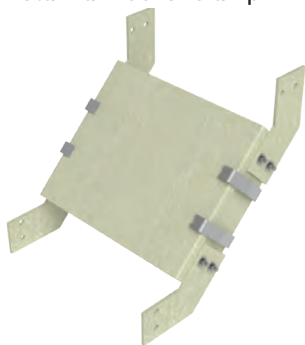
SDM Vertical Adjustable Mounting Cover

Description	Height (mm)	Width (mm)	Thickness (mm)	Order Code	Weight (kg/pcs)
CTA GRP 050 SDM	15	50	3	3191230	0,1
CTA GRP 100 SDM	15	100	3	3191231	0,17
CTA GRP 150 SDM	15	150	3	3191232	0,24
CTA GRP 200 SDM	15	200	3	3191233	0,3
CTA GRP 250 SDM	15	250	3	3191234	0,36
CTA GRP 300 SDM	15	300	3	3191235	0,43
CTA GRP 400 SDM	15	400	3	3191236	0,55
CTA GRP 450 SDM	15	450	3	3191237	0,62
CTA GRP 500 SDM	15	500	3	3191238	0,68
CTA GRP 600 SDM	15	600	3	3191239	0,81

Installation :

ID90° Inside Vertical Elbow

• Standard Cover Clamp



• Heavy Duty Cover Clamp



DD90° Outside Vertical Elbow

• Standard Cover Clamp

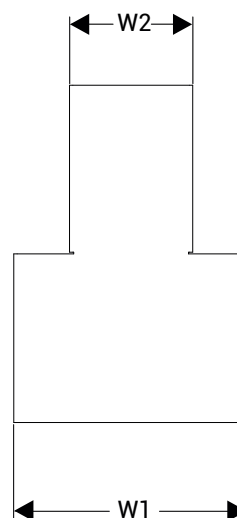
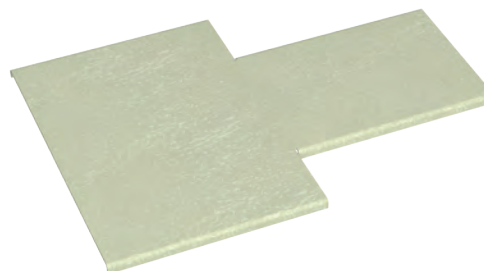


• Heavy Duty Cover Clamp



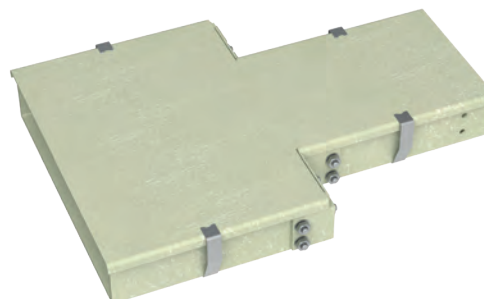
- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- **Cover Clamps** : 4 pcs Standart Cover Clamp(Page-68) or 1 pcs Heavy Duty Cover Clamp (Page-69)

W1 (mm)	W2 (mm)	Description	Order Code	Weight (kg/pcs)
150	50	CTA GRP K 150/050/MR (3mm)	3379924	0,46
200		CTA GRP K 200/050/MR (3mm)	3379926	0,55
250		CTA GRP K 250/050/MR (3mm)	3379965	0,63
300		CTA GRP K 300/050/MR (3mm)	3379968	0,72
400		CTA GRP K 400/050/MR (3mm)	3379973	0,88
450		CTA GRP K 450/050/MR (3mm)	3380035	0,97
500		CTA GRP K 500/050/MR (3mm)	3380042	1,05
600		CTA GRP K 600/050/MR (3mm)	3380048	1,22
200	100	CTA GRP K 200/100/MR (3mm)	3379925	1,32
250		CTA GRP K 250/100/MR (3mm)	3379927	0,73
300		CTA GRP K 300/100/MR (3mm)	3379967	0,82
400		CTA GRP K 400/100/MR (3mm)	3379970	0,98
450		CTA GRP K 450/100/MR (3mm)	3380030	1,07
500		CTA GRP K 500/100/MR (3mm)	3380037	1,15
600		CTA GRP K 600/100/MR (3mm)	3380044	1,32
250	150	CTA GRP K 250/150/MR (3mm)	3379963	0,82
300		CTA GRP K 300/150/MR (3mm)	3379896	0,90
400		CTA GRP K 400/150/MR (3mm)	3379895	1,07
450		CTA GRP K 450/150/MR (3mm)	3379894	1,15
500		CTA GRP K 500/150/MR (3mm)	3379893	1,24
600		CTA GRP K 600/150/MR (3mm)	3379892	1,40
300	200	CTA GRP K 300/200/MR (3mm)	3379889	0,98
400		CTA GRP K 400/200/MR (3mm)	3379888	1,15
450		CTA GRP K 450/200/MR (3mm)	3379887	1,24
500		CTA GRP K 500/200/MR (3mm)	3349418	1,32
600		CTA GRP K 600/200/MR (3mm)	3379886	1,49
400	250	CTA GRP K 400/250/MR (3mm)	3379971	1,24
450		CTA GRP K 450/250/MR (3mm)	3380032	1,32
500		CTA GRP K 500/250/MR (3mm)	3380039	1,40
600		CTA GRP K 600/250/MR (3mm)	3380046	1,57
400	300	CTA GRP K 400/300/MR (3mm)	3379883	1,32
450		CTA GRP K 450/300/MR (3mm)	3379882	1,41
500		CTA GRP K 500/300/MR (3mm)	3379881	1,49
600		CTA GRP K 600/300/MR (3mm)	3379880	1,66
500	400	CTA GRP K 500/400/MR (3mm)	3379877	1,66
600		CTA GRP K 600/400/MR (3mm)	3379876	1,82
600	450	CTA GRP K 600/450/MR (3mm)	3379873	1,91
600	500	CTA GRP K 600/500/MR (3mm)	3379870	1,99



Installation

- Standard Cover Clamp



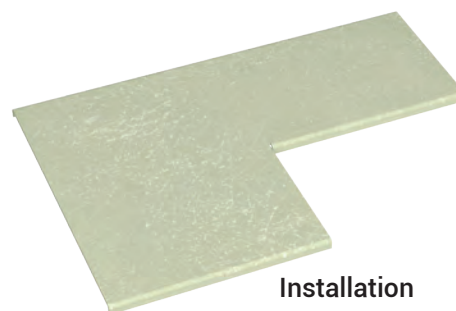
E-LINE CTA GRP

Covers

LR Left / RR Right Reducer Cover

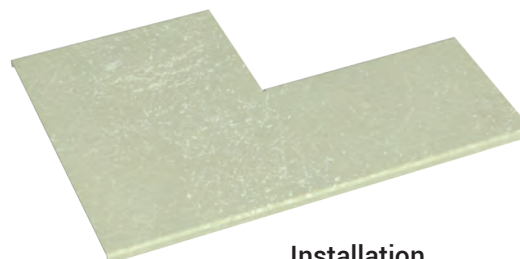
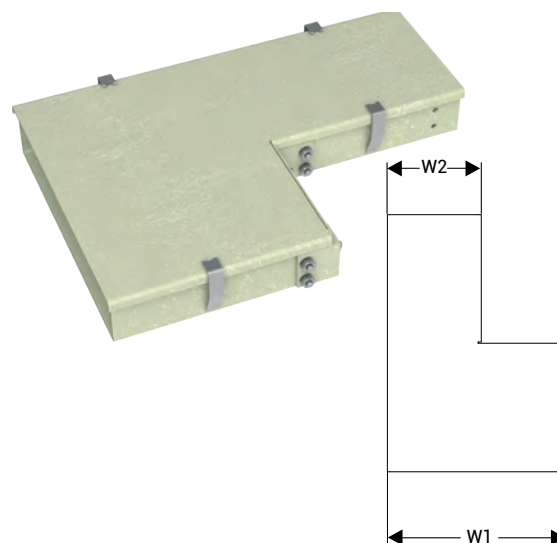


W1 (mm)	W2 (mm)	Description	Order Code	Weight (kg/pcs)
100	50	CTA GRP K 100/050/RR/LR (3MM)	3379897	0,38
150		CTA GRP K 150/050/RR/LR (3MM)	3379899	0,46
200		CTA GRP K 200/050/RR/LR (3MM)	3379902	0,55
250		CTA GRP K 250/050/RR/LR (3MM)	3379906	0,63
300		CTA GRP K 300/050/RR/LR (3MM)	3379909	0,72
400		CTA GRP K 400/050/RR/LR (3MM)	3379912	0,88
450		CTA GRP K 450/050/RR/LR (3MM)	3379916	0,97
500		CTA GRP K 500/050/RR/LR (3MM)	3379920	1,05
600		CTA GRP K 600/050/RR/LR (3MM)	3379923	1,22
150	100	CTA GRP K 150/100/RR/LR (3MM)	3379898	0,56
200		CTA GRP K 200/100/RR/LR (3MM)	3379900	0,65
250		CTA GRP K 250/100/RR/LR (3MM)	3379903	0,73
300		CTA GRP K 300/100/RR/LR (3MM)	3379907	0,82
400		CTA GRP K 400/100/RR/LR (3MM)	3379910	0,98
450		CTA GRP K 450/100/RR/LR (3MM)	3379913	1,07
500		CTA GRP K 500/100/RR/LR (3MM)	3379917	1,15
600		CTA GRP K 600/100/RR/LR (3MM)	3379921	1,32
200	150	CTA GRP K 200/150/RR/LR (3MM)	3379901	0,73
250		CTA GRP K 250/150/RR/LR (3MM)	3379904	0,82
300		CTA GRP K 300/150/RR/LR (3MM)	3379865	0,90
400		CTA GRP K 400/150/RR/LR (3MM)	3379864	1,07
450		CTA GRP K 450/150/RR/LR (3MM)	3379863	1,15
500		CTA GRP K 500/150/RR/LR (3MM)	3379862	1,24
600		CTA GRP K 600/150/RR/LR (3MM)	3379861	1,40
250	200	CTA GRP K 250/200/RR/LR (3MM)	3379905	0,90
300		CTA GRP K 300/200/RR/LR (3MM)	3379858	0,98
400		CTA GRP K 400/200/RR/LR (3MM)	3379857	1,15
450		CTA GRP K 450/200/RR/LR (3MM)	3379856	1,24
500		CTA GRP K 500/200/RR/LR (3MM)	3379855	1,32
600		CTA GRP K 600/200/RR/LR (3MM)	3379854	1,49
300	250	CTA GRP K 300/250/RR/LR (3MM)	3379908	1,07
400		CTA GRP K 400/250/RR/LR (3MM)	3379911	1,24
450		CTA GRP K 450/250/RR/LR (3MM)	3379914	1,32
500		CTA GRP K 500/250/RR/LR (3MM)	3379918	1,40
600		CTA GRP K 600/250/RR/LR (3MM)	3379922	1,57
400	300	CTA GRP K 400/300/RR/LR (3MM)	3379851	1,32
450		CTA GRP K 450/300/RR/LR (3MM)	3379850	1,41
500		CTA GRP K 500/300/RR/LR (3MM)	3379849	1,49
600		CTA GRP K 600/300/RR/LR (3MM)	3379848	1,66
450	400	CTA GRP K 450/400/RR/LR (3MM)	3379915	1,57
500		CTA GRP K 500/400/RR/LR (3MM)	3379845	1,66
600		CTA GRP K 600/400/RR/LR (3MM)	3379844	1,82
500	450	CTA GRP K 500/450/RR/LR (3MM)	3379919	1,74
600		CTA GRP K 600/450/RR/LR (3MM)	3379841	1,91
600	500	CTA GRP K 600/500/RR/LR (3MM)	3379838	1,99



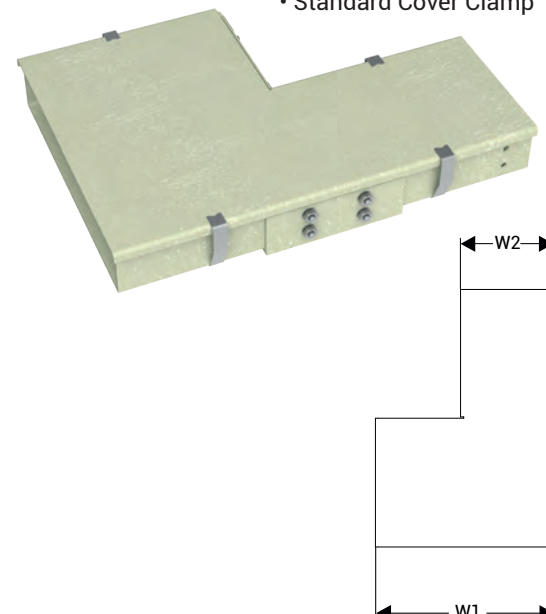
Installation

- Standard Cover Clamp



Installation

- Standard Cover Clamp



E-LINE CTA GRP

Accessories

Separator

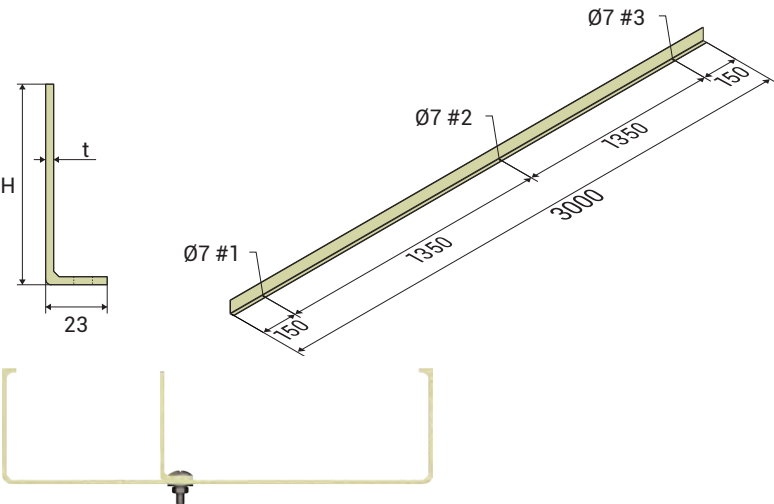


Produced by the pultrusion method. Delivered with pre-drilled holes.

Description	Height (mm)	Thickness (mm)	Order Code	Weight (kg/m)
50 CT-KM GRP SPR / 3m	45	3	3191260	0,57
80 CT-KM GRP SPR / 3m	75	3	3191261	0,86
100 CT-KM GRP SPR / 3m	95	3	3191262	0,92



Hole Positions:



- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- Fasteners : A 3-meter separator includes 3 sets of M8x25 SS316 bolts

E-LINE CTA GRP

Accessories

Accessories, Material: GRP

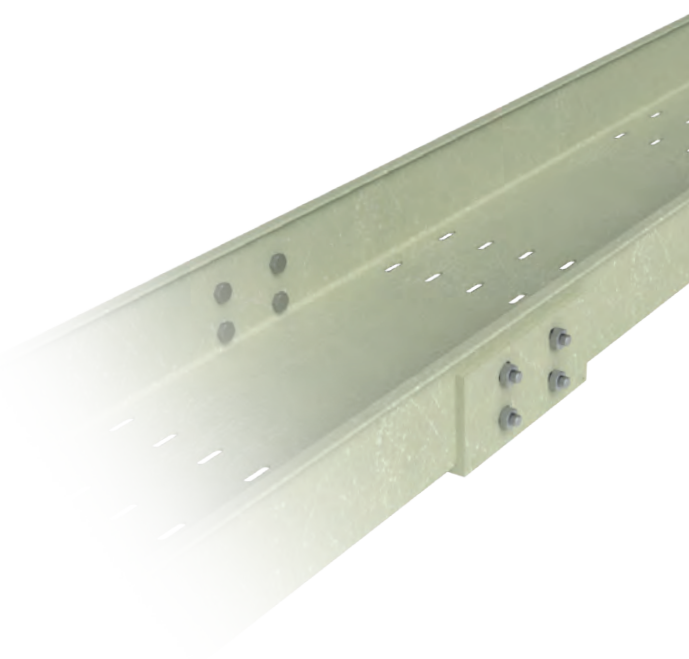
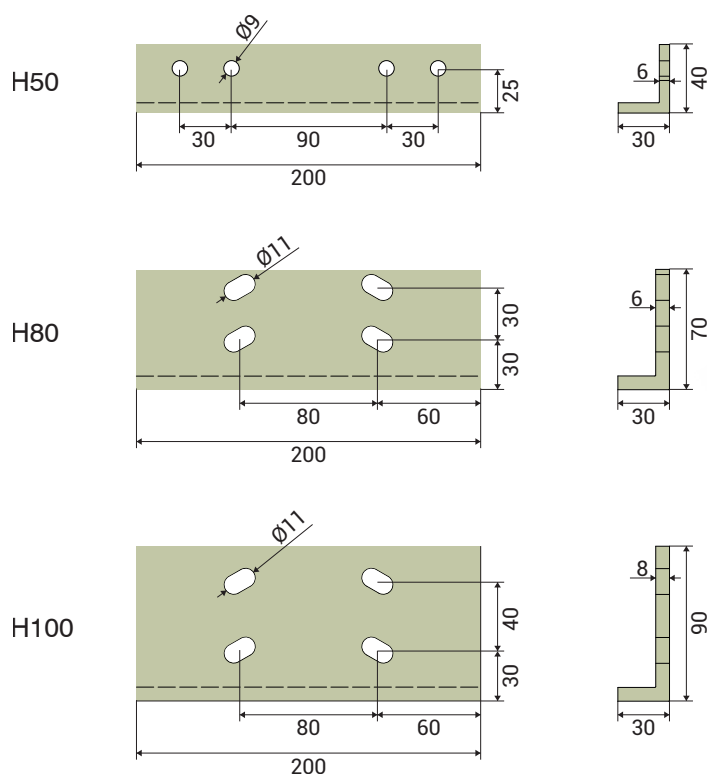


Delivered with pre-drilled holes.



Description	Height (mm)	Length (mm)	Thickness (mm)	Required Fixing Set (SS316)	Weight (kg/pcs)	Order Code
50 KCA/CTA GRP	40	200	6	4 Set M8X25	0,13	3191263
80 KCA/CTA GRP	70	200	6	4 Set M10x25	0,20	3191264
100 KCA/CTA GRP	90	200	8	4 Set M10x25	0,31	3177483

Dimensions :

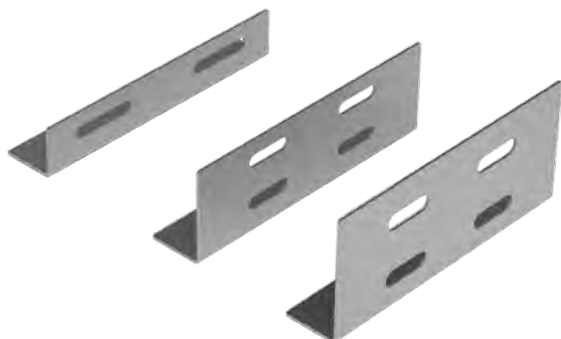


- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- **Fasteners** : For H50mm: 4 sets of M8x25 SS316 (Page 67) (To be ordered separately).
For H80mm and H100mm: 4 sets of M10x25 SS316 (Page 67) (To be ordered separately).

E-LINE CTA GRP

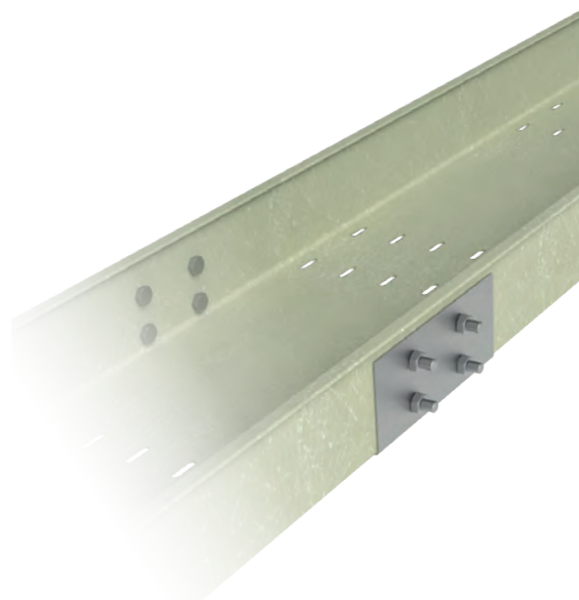
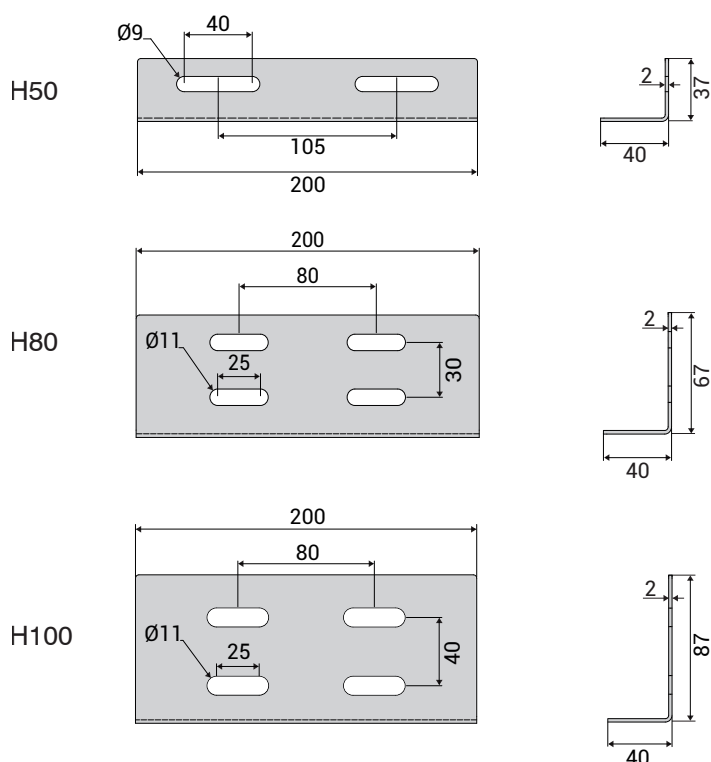
Accessories

Expansion Joint, Material: 316 Stainless Steel



Description	Height (mm)	Length (mm)	Thickness (mm)	Required Fixing Set (SS316)	Weight (kg/pcs)	Order Code
050 KCA/CTA GRP Expansion Joint SS316	37	200	2	4 Set M8x25 SS316	0,22	3415120
080 KCA/CTA GRP Expansion Joint SS316	67	200	2	4 Set M10x25 SS316	0,31	3415121
100 KCA/CTA GRP Expansion Joint SS316	87	200	2	4 Set M10x25 SS316	0,37	3415122

Dimensions :



- Material : 316 Grade stainless steel.
- Fasteners : For H50mm: 4 sets of M8x25 SS316 (Page 67) (To be ordered separately).
For H80mm and H100mm: 4 sets of M10x25 SS316 (Page 67) (To be ordered separately)

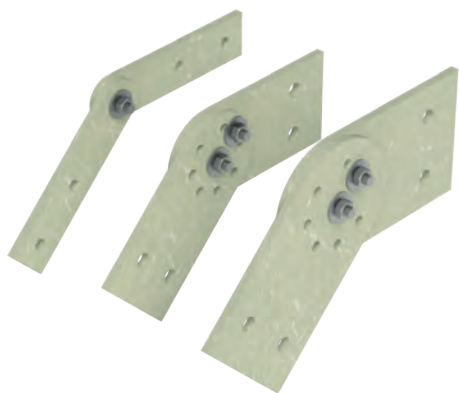
E-LINE CTA GRP

Accessories

SDE Vertical Adjustable Fitting



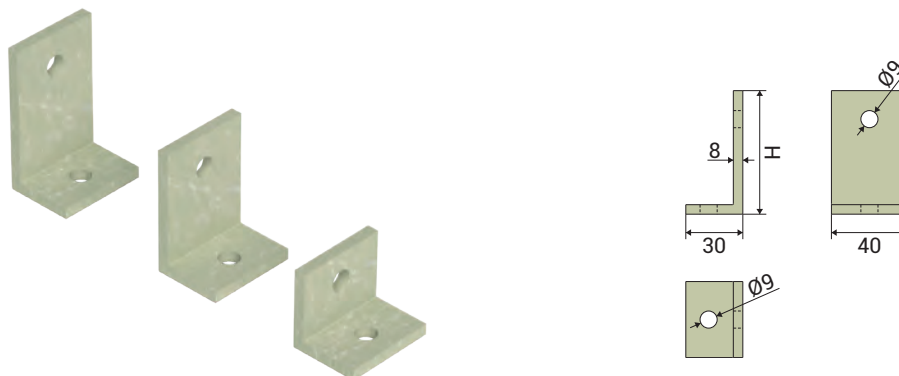
Produced by the pultrusion method. Shipped with pre-drilled holes and preassembled.



Description	Height (mm)	Thickness (mm)	Weight (kg/pcs)	Weight (kg/set)	Order Code
50 KCA/CTA GRP SDE-GRP	30	5	0,035	0,09	3191269
80 KCA/CTA GRP SDE-GRP	60	5	0,060	0,16	3191270
100 KCA/CTA GRP SDE-GRP	80	5	0,100	0,25	3177487



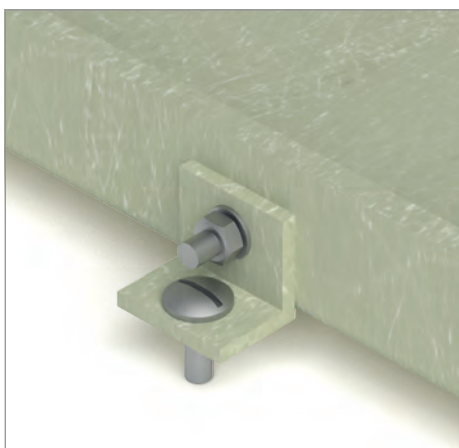
- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)
- **Fasteners** : For mounting the H50mm SDE part to the ladder or tray: 4 sets of M8x25 SS316 (Page 67)
For mounting the H80mm and H100mm SDE parts to the ladder or tray: 4 sets of M10x25 SS316 (Page 67).



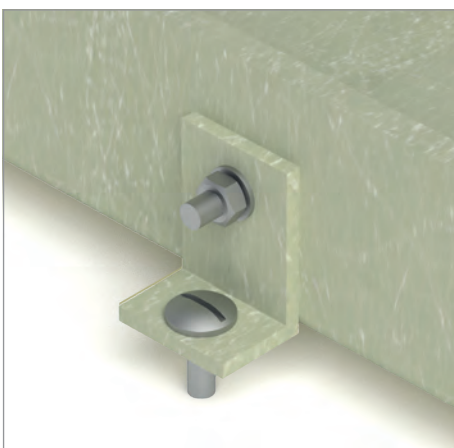
Description	Material	Height (mm)	Weight (kg/set)	Order Code
H50 L-Fixing Clamp (GRP)	GRP	35	0,036	1027015
H80 L-Fixing Clamp (GRP)	GRP	55	0,046	1027016
H100 L-Fixing Clamp (GRP)	GRP	65	0,052	1027017

Installation:

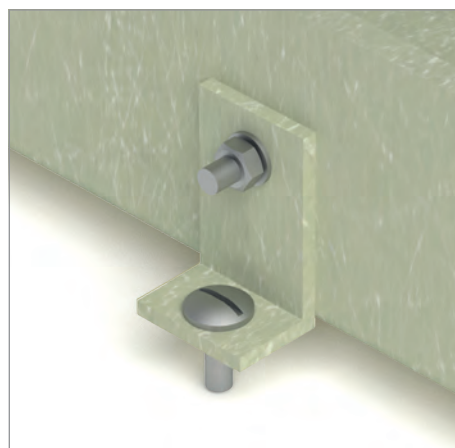
H50



H80



H100



Not : The L-Fixing Clamp (GRP) must be drilled at the installation points with a drill bit in order to be mounted on the GRP tray. GRP trays will be supplied with holes only at the ends for the installation of accessory components

- **Material** : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- **Color** : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

Bolt Sets

Description	Material	Weight (kg/set)	Order Code
M8x25 Fixing Sets (SS316)	SS316 (A4)	0,036	1027109
M10X25 Fixing Sets (SS316)	SS316 (A4)	0,049	1074621



Bolt (DIN 7985)

Description	Material	Weight (kg/pcs)	Order Code
M8x25 Bolt (DIN 7985) (SS316)	SS316 (A4)	0,019	1025647
M10X25 Bolt (DIN 7985) (SS316)	SS316 (A4)	0,028	1075074



Nuts (DIN 934)

Description	Material	Weight (kg/pcs)	Order Code
M8 Hex Nut (DIN 934) (SS316)	SS316 (A4)	0,005	1025649
M10 Hex Nut (DIN 934) (SS316)	SS316 (A4)	0,01	1063408



Plain Washer (DIN 9021)

Description	Material	Weight (kg/pcs)	Order Code
M8 Plain Washer (DIN 9021) (SS316)	SS316 (A4)	0,006	1025648
M10 Plain Washer (DIN 9021) (SS316)	SS316 (A4)	0,011	1075075



Description	Material	Weight (kg/set)	Order Code
M10x40 Composite Bolt + M10 Wing Nut	GRP	0,015	1071357



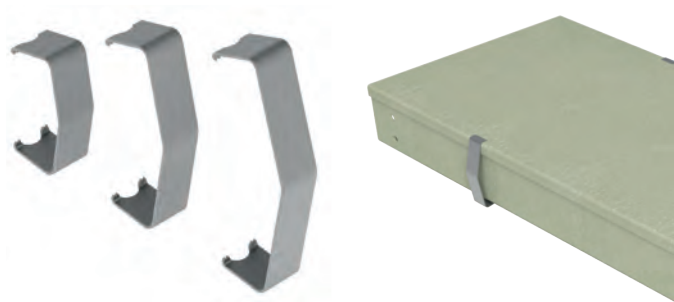
E-LINE CTA GRP

Cover Clamps

Standard Cover Clamp (Stainless Steel)



Description	Weight (kg/pcs)	Order Code
50 KCA/CTA GRP Cover Clamp SS	0,020	1027009
80 KCA/CTA GRP Cover Clamp SS	0,025	1027010
100 KCA/CTA GRP Cover Clamp SS	0,030	1025642
150 KCA/CTA GRP Cover Clamp SS	0,040	1025643



- Material : Stainless Steel

End Fitting

Description	Height (mm)	Width (mm)	Weight (kg/set)	Order Code
050 CT-KM GRP 050 End Fitting	50	50	0,09	3266371
050 CT-KM GRP 100 End Fitting	50	100	0,10	3266372
050 CT-KM GRP 150 End Fitting	50	150	0,12	3266373
050 CT-KM GRP 200 End Fitting	50	200	0,13	3266374
050 CT-KM GRP 250 End Fitting	50	250	0,15	3266375
050 CT-KM GRP 300 End Fitting	50	300	0,16	3266376
050 CT-KM GRP 400 End Fitting	50	400	0,19	3266377
050 CT-KM GRP 450 End Fitting	50	450	0,20	3266378
050 CT-KM GRP 500 End Fitting	50	500	0,22	3266379
050 CT-KM GRP 600 End Fitting	50	600	0,24	3266380
080 CT-KM GRP 100 End Fitting	80	100	0,16	3266381
080 CT-KM GRP 150 End Fitting	80	150	0,18	3266382
080 CT-KM GRP 200 End Fitting	80	200	0,20	3266383
080 CT-KM GRP 250 End Fitting	80	250	0,22	3266384
080 CT-KM GRP 300 End Fitting	80	300	0,25	3266385
080 CT-KM GRP 400 End Fitting	80	400	0,29	3266386
080 CT-KM GRP 450 End Fitting	80	450	0,31	3266387
080 CT-KM GRP 500 End Fitting	80	500	0,33	3266388
080 CT-KM GRP 600 End Fitting	80	600	0,38	3266389
100 CT-KM GRP 100 End Fitting	100	100	0,25	3266390
100 CT-KM GRP 150 End Fitting	100	150	0,28	3266391
100 CT-KM GRP 200 End Fitting	100	200	0,30	3266392
100 CT-KM GRP 250 End Fitting	100	250	0,33	3266393
100 CT-KM GRP 300 End Fitting	100	300	0,36	3266394
100 CT-KM GRP 400 End Fitting	100	400	0,42	3266395
100 CT-KM GRP 450 End Fitting	100	450	0,44	3266396
100 CT-KM GRP 500 End Fitting	100	500	0,47	3266397
100 CT-KM GRP 600 End Fitting	100	600	0,53	3266398
150 CT-KM GRP 150 End Fitting	150	150	0,42	3266399
150 CT-KM GRP 200 End Fitting	150	200	0,46	3266400
150 CT-KM GRP 300 End Fitting	150	300	0,54	3266401
150 CT-KM GRP 400 End Fitting	150	400	0,63	3266402
150 CT-KM GRP 450 End Fitting	150	450	0,67	3266403
150 CT-KM GRP 500 End Fitting	150	500	0,71	3266404
150 CT-KM GRP 600 End Fitting	150	600	0,79	3266405



- Material : Glass Reinforced Polyester (GRP) (Vinyl ester and anti-static products available upon special request.)
- Color : RAL 7032 Pebble Grey (Custom colors available upon request; minimal color tone variation may be observed.)

E-LINE CTA GRP

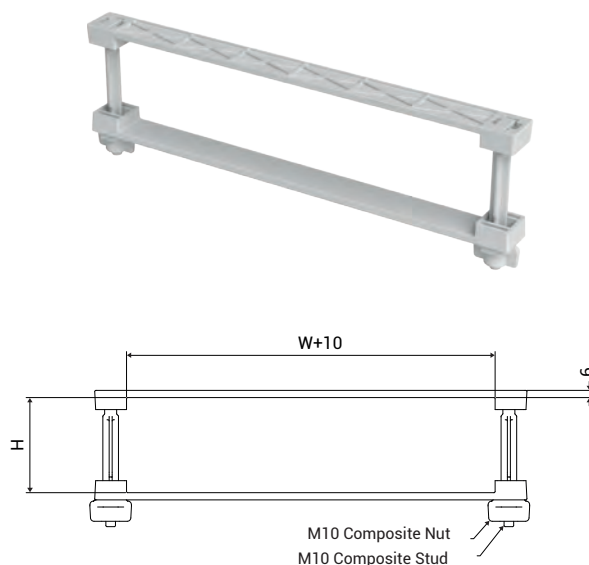
Cover Clamps

Heavy Duty Cover Clamp



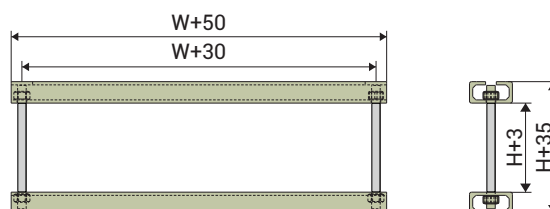
Produced using the SMC method.

Description	Height (mm)	Width (mm)	Weight (kg/set)	Order Code
050 CTA GRP 050 Heavy Duty Cover Clamp	50	50	0,095	3407253
050 CTA GRP 100 Heavy Duty Cover Clamp	50	100	0,122	3407254
050 CTA GRP 150 Heavy Duty Cover Clamp	50	150	0,137	3407255
050 CTA GRP 200 Heavy Duty Cover Clamp	50	200	0,152	3407256
050 CTA GRP 250 Heavy Duty Cover Clamp	50	250	0,167	3407257
050 CTA GRP 300 Heavy Duty Cover Clamp	50	300	0,186	3407258
050 CTA GRP 400 Heavy Duty Cover Clamp	50	400	0,222	3407259
050 CTA GRP 450 Heavy Duty Cover Clamp	50	450	0,237	3407260
050 CTA GRP 500 Heavy Duty Cover Clamp	50	500	0,262	3407261
050 CTA GRP 600 Heavy Duty Cover Clamp	50	600	0,302	3407262
080 CTA GRP 100 Heavy Duty Cover Clamp	80	100	0,127	3407263
080 CTA GRP 150 Heavy Duty Cover Clamp	80	150	0,142	3407264
080 CTA GRP 200 Heavy Duty Cover Clamp	80	200	0,157	3407265
080 CTA GRP 250 Heavy Duty Cover Clamp	80	250	0,172	3407266
080 CTA GRP 300 Heavy Duty Cover Clamp	80	300	0,191	3407267
080 CTA GRP 400 Heavy Duty Cover Clamp	80	400	0,227	3407268
080 CTA GRP 450 Heavy Duty Cover Clamp	80	450	0,242	3407269
080 CTA GRP 500 Heavy Duty Cover Clamp	80	500	0,267	3407270
080 CTA GRP 600 Heavy Duty Cover Clamp	80	600	0,307	3407271
100 CTA GRP 100 Heavy Duty Cover Clamp	100	100	0,131	3407272
100 CTA GRP 150 Heavy Duty Cover Clamp	100	150	0,146	3407273
100 CTA GRP 200 Heavy Duty Cover Clamp	100	200	0,161	3407274
100 CTA GRP 250 Heavy Duty Cover Clamp	100	250	0,176	3407275
100 CTA GRP 300 Heavy Duty Cover Clamp	100	300	0,195	3407276
100 CTA GRP 400 Heavy Duty Cover Clamp	100	400	0,231	3407277
100 CTA GRP 450 Heavy Duty Cover Clamp	100	450	0,246	3407278
100 CTA GRP 500 Heavy Duty Cover Clamp	100	500	0,271	3407279
100 CTA GRP 600 Heavy Duty Cover Clamp	100	600	0,311	3407280



For 50mm - 600mm widths

Produced by the pultrusion method.



For 750mm - 900mm widths

Material & Quantity:

Profiles: GRP (2 pieces)

Threaded Rod (Stud): M8, SS316 (2 pieces)

Nut: M8, SS316 (4 pieces)

Flat Washer: M8, SS316 (4 pieces)

Description	Height (mm)	Width (mm)	Weight (kg/set)	Order Code
100 CT-KM GRP 750 Heavy Duty Cover Clamp	100	750	1,128	3210406
100 CT-KM GRP 900 Heavy Duty Cover Clamp	100	900	1,316	3210407

Part 1 – Scope

This specification covers the minimum requirements for the design, manufacture, testing, and supply of Glass Reinforced Polyester (CTA GRP) cable trays, necessary hardware, accessories, and fittings suitable for indoor/outdoor installations required for cable laying.

- CTA GRP Cable trays shall be designed and manufactured to meet the requirements of IEC 61537.
- All cable connections and accessories shall be corrosion/chemical resistant, weather resistant, easy to drill and cut, lightweight, high strength, and flame retardant (Class 1 Rating) in accordance with ISO 9227. All CTA GRP Cable trays materials shall contain UV-resistant chemical additives to resist degradation caused by ultraviolet light. All CTA GRP Cable trays materials will contain UV-resistant chemical additives to resist degradation caused by ultraviolet light.
- All composite materials shall have halogen-free properties
- CTA GRP Cable Trays and accessories can be manufactured with anti-static properties upon request.

Design & Deflection

- CTA GRP Glass Glass Reinforced Polyester Cable tray sections are designed and manufactured to meet the loading requirements of IEC 61537 and are available in various load and span performances up to 3 meters.
- All reported results are based on uniformly distributed static loads and a multi-span configuration for the IEC 61537 load test.
- All load results detailed in this section have been derived from testing 600mm wide sections of KCA CTA cable ladders in the various configurations.
- The CTA GRP Cable Ladder must have connection holes drilled at both ends.
- The rungs must be secured to the side walls with locking clips.
- The exterior color of the product will be standard RAL 7032 beige. It should be possible to produce it in a different RAL code color upon request. Minimal variations in the color tone of the product may be observed.

Part 2 - Products

Specifications For EAE Cable Tray E-Line CTA GRP Series Cable Tray

1. Cable Tray Design

- Cable tray shall be designed and manufactured by EAE ELEKTRİK A.S.
- They shall be complete with installation and mounting accessories of CTA GRP such as bends, tees, crosses, reducers, splices, tray covers and other necessary hardware, fastener etc. defined in the latest IEC 61537 standard (International standard).
- Specially designed and manufactured cable tray allows easy installation of cables which shall be free from burrs, projections, sharp edges inside where cables can be damaged.

2. Manufacture and Dimensions

- CTA GRP cable trays are manufactured in metric SI units.
- Length. Straight lengths shall be manufactured in 3-meters.
- Height. Overall heights shall be 50mm, 80mm, and 100mm.
- Overall widths shall be 150mm, 200mm, 250mm, 300mm, 400mm, 450mm, 500mm and 600mm.
- Thickness shall be 3 mm for 50-300mm widths and 4,5mm for 400-600mm widths.
- Various types of fittings are available for supporting horizontal and vertical directional cable route/size changes:
 - Horizontal fittings: elbows, tee, cross, middle-left-right reducers,
 - Vertical fittings: inside vertical elbow, outside vertical elbow, vertical adjustable fitting,
 - Standard Radius: R300, R450 and R600 (300, 450 and 600mm, respectively),
 - Standard angle for horizontal and vertical elbows: 45° and 90° (Other angles are possible upon request.).

3. Material Properties

CTA GRP Cable Ladders must be manufactured from "Glass Reinforced Polyester" material. The manufactured products must have the following properties and these properties must be declared and proven by type test reports obtained from an internationally accredited laboratory.

- Standard products are manufactured in accordance with UL94; V0 flame retardancy within 10 seconds.
- Products with F0 and M1 flame resistance, as specified in the NF F 16-101 standard, can be manufactured upon request.
- Must be Class-1 according to ASTM E-84. (Flame spread and smoke production test)
- Must be tested according to DIN 4102-1 and be B1 class. (Dripping, smoke, and smoke temperature test when exposed to flame)
- Must be tested according to EN 60754 and be halogen-free. (The measurement of halogen formed when exposed to flame must be no more than 5 mg/g.)
- Must be tested according to ISO 4892-2 standard for UV resistance. (Tested for 60 days between -40°C and +85°C, no color change or material deterioration should be observed. This test simulates 10 years of UV exposure.)
- It must be tested and certified according to the EN 60068-2-1 standard (-75°C for 72 hours, with no physical changes observed at the end).
- Electrical conductivity must be measured according to the EN 60079-0 standard. (Standard products have insulating properties; anti-static products can be produced upon request.)
- It must be tested according to the ISO 62 standard (water absorption test).
- It must be tested and approved for ozone aging according to the ISO 1431-1 standard.
- Transport values must be tested and certified according to the IEC 61537 standard.
- Must be subjected to a minimum of 1500 hours of salt testing according to the ISO 9227 standard.
- Must be tested and approved according to the ASTM D 4385 standard (Visual defects).
- Must be tested and approved according to the TS EN 60243-1 standard (Dielectric test).

4. Covers

- Covers shall be constructed with a minimum thickness 3mm.
- All range of manufactured straight lengths and fittings shall be supplied with their covers upon request.
- Covers will be manufactured up to 600mm in width.
- Heavy duty omega type cover clamps shall be used for outdoor applications.

5. Accessories

- Accessories shall be furnished as required to protect, support and install the cable ladder system.
- Splice plates, expansion splice plates, horizontal and vertical adjustable couplers, vertical adjustable fitting, dividers, junction box plates as well as fixing fasteners are standard manufactured and supplied accessories by EAE.

6. Splice Plates

- Splice plates shall be fastened to the outside of the cable ladder side-rails.
- Bolts, nuts and washers shall be supplied with splice plates. Stainless Steel 316 as standard.
- Additional components should be manufactured from Glass Reinforced Polyester material or 316 (A4) grade stainless steel material.

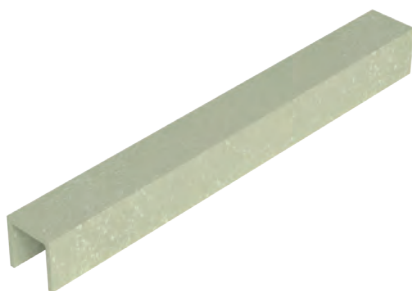
E-LINE GRP A-A

GRP Support Systems

Description	Weight (kg/m)	Order Code
43x43x 4mm GRP Binrak	1,06	3234649



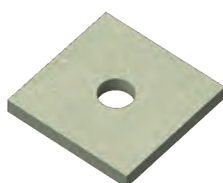
Description	Weight (kg/m)	Order Code
58x58 x 7mm GRP U-Profile	2,08	3234650



Description	Weight (kg/m)	Order Code
40x80 x 10mm GRP U-Profile	2,62	3361200



Description	T (mm)	Weight (kg/pcs)	Order Code
BR 1-1 GRP Square nut	8	0,019	3234651



Description	T (mm)	Weight (kg/pcs)	Order Code
GRP TMP Ceiling Mounting Fitting	10	0,9	3358556



E-LINE GRP A-A

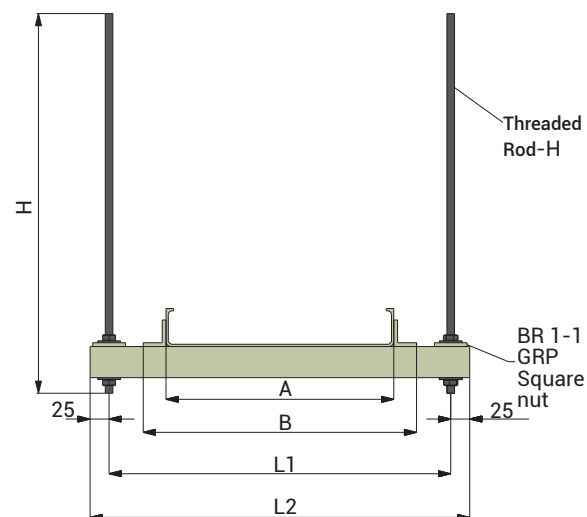
Ceiling Rod Hanger



Description	Dimension	Material	Weight (kg/pcs)	Order Code
Threaded Rod	M8x500	SS316	0,20	5000832
	M8x1000	SS316	0,40	5000833
	M8x1500	SS316	0,60	5000834
	M8x2000	SS316	0,80	5000835
	M8x3000	SS316	1,20	5000836
	M10x500	SS316	0,32	5000838
	M10x1000	SS316	0,64	5000839
	M10x1500	SS316	0,96	5000840
	M10x2000	SS316	1,28	5000841
	M10x3000	SS316	1,92	5000842
Nut (DIN 934)	M8	SS316	0,005	1025649
	M10	SS316	0,012	1011109
Flat Washer (DIN 9021) (DIN 9021)	M8	SS316	0,006	1025648
	M10	SS316	0,013	1027285
BR 1-1 GRP Square Nut		GRP	0,019	3234651
43x43x 4mm GRP Binrak		GRP	1,06 (kg/m)	3234649

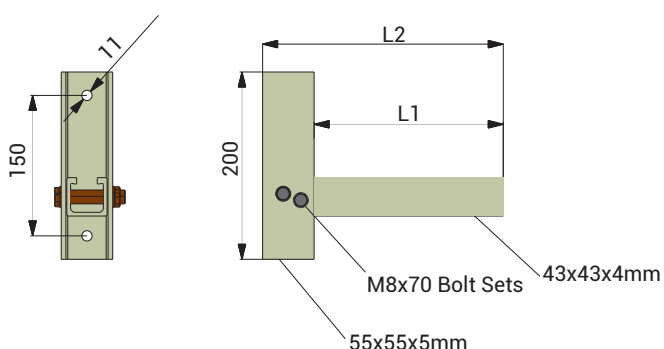


Tray Width					
A (mm)	B (mm)	L1 (mm)	L2 (mm)	H (mm)	
50	110	200	250	H	
100	160	250	300	H	
150	210	300	350	H	
200	260	350	400	H	
250	310	400	450	H	
300	360	450	500	H	
400	460	550	600	H	
450	510	600	650	H	
500	560	650	700	H	
600	660	750	800	H	



Cantilever Arm – Without Bracing

Description	L1 (mm)	L2 (mm)	Load Capacity (kg)	Weight (kg/set)	Order Code
GRP Cantilever Arm – Without Bracing-050	100	155	125	0,70	3234658
GRP Cantilever Arm – Without Bracing-100	150	205	125	0,75	3234659
GRP Cantilever Arm – Without Bracing-150	200	255	125	0,80	3234660
GRP Cantilever Arm – Without Bracing-200	250	305	125	0,86	3234661
GRP Cantilever Arm – Without Bracing-250	300	355	125	0,91	3234662
GRP Cantilever Arm – Without Bracing300	350	405	125	0,97	3234663

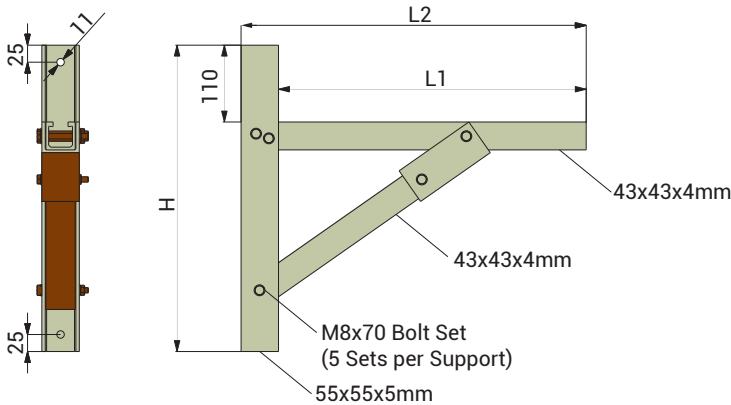


E-LINE GRP A-A

Cantilever Arm – With Angle Bracing



Description	L1 (mm)	L2 (mm)	H (mm)	Load Capacity (kg)	Weight (kg/set)	Order Code
GRP Cantilever Arm – With Angle Bracing-400	450	505	450	125	1,94	3234669
GRP Cantilever Arm – With Angle Bracing-450	500	555	500	125	2,15	3234670
GRP Cantilever Arm – With Angle Bracing-500	550	605	550	125	2,29	3234671
GRP Cantilever Arm – With Angle Bracing-600	650	705	550	125	2,41	3234672



PE

Polyester Resin (ex: seaside, offshore platforms)

Most commonly used resin system. It offers good chemical resistance and weathering properties

- Environment: Strong atmospheric type corrosion (ex: seaside)
- Advantages: Optimal cost, good behaviour to fire
- Our recommendation: Self-extinguishing polyester, 0% halogen

PE-A

Polyester Anti-static Resin (ex: mine, gas groups I)

Anti-static property is given to Polyester resin by adding carbon-powder, which increases the conductivity of the material where grounding is required.

- Enviroment: Highly exploding atmospheres
- Advantages: Anti-static properties
- Our recommendation: 0% halogen

AC

Acrylic Resin (ex: tunnel)

It is ideal to use in enclosed areas, mass transit and tunnels. This resin has low smoke and toxicity properties while maintains good fire properties.

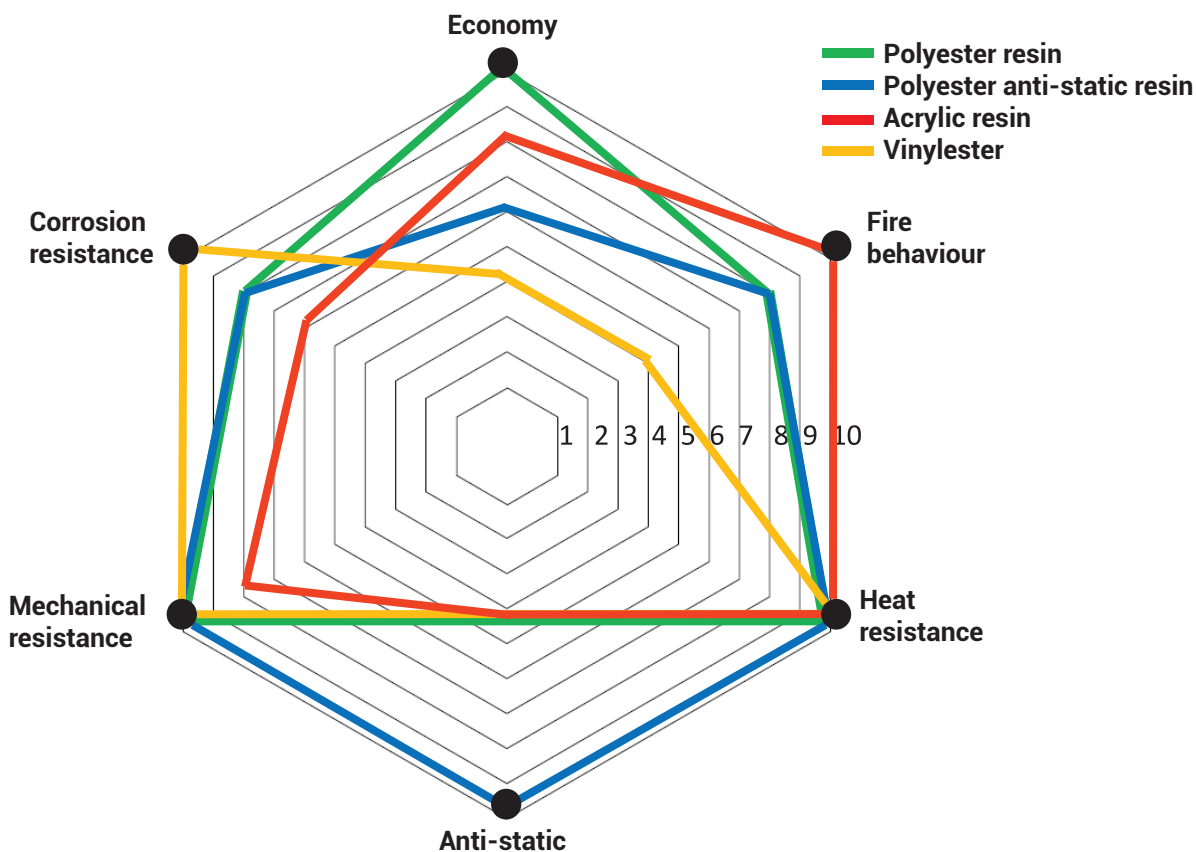
- Enviroment: Risk of fire in enclosed and corrosive environment (ex: seaside)
- Advantages: Excellent resistance to fire with max. security
- Our recommendation: Self-extinguishing acrylic, 0% halogen

VE

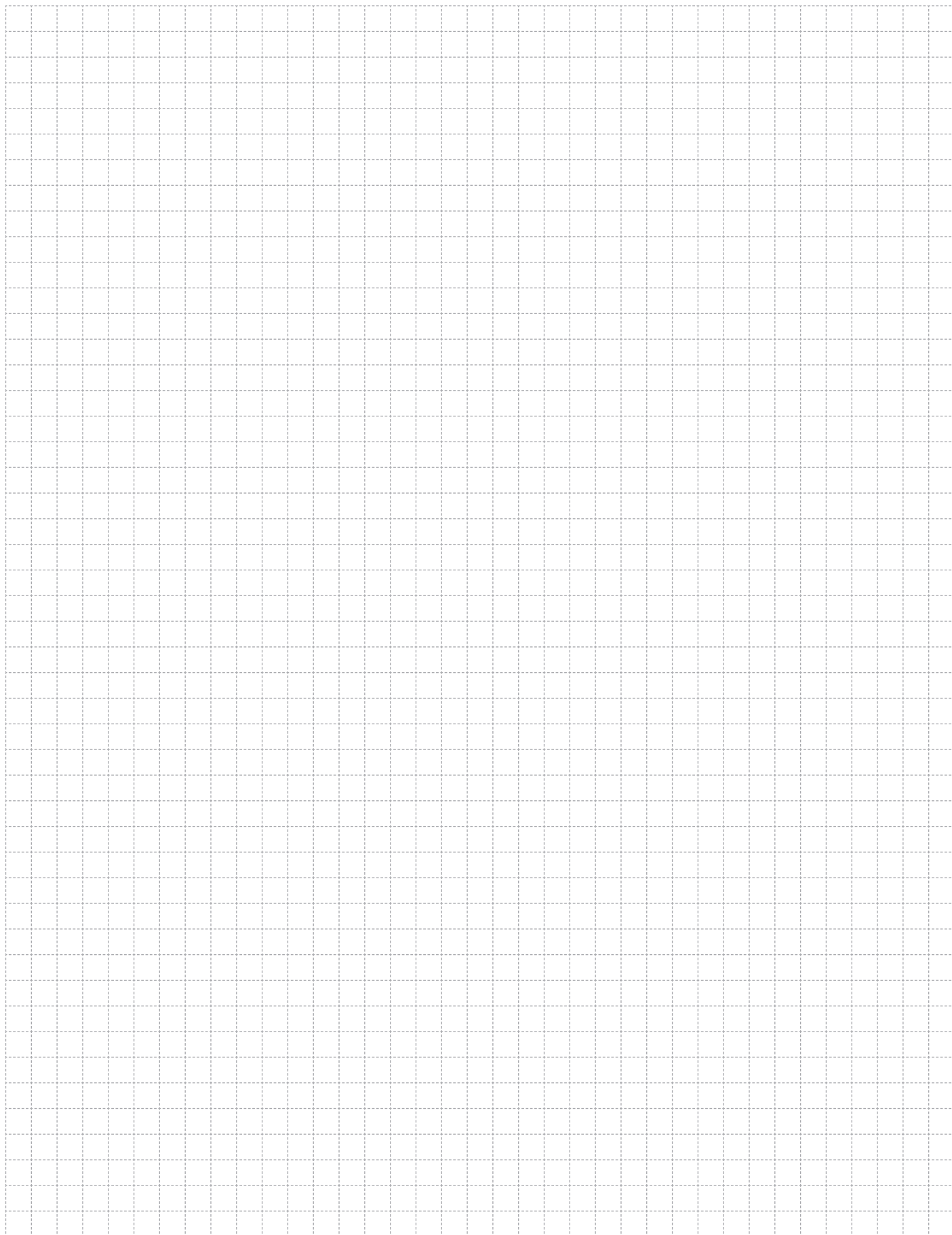
Vinyl Resin (ex: H2SO4, HCl, corrosive chemical agents)

If offers resistance to aggressive chemicals such as H2SO4, HCl etc.

- Enviroment: Heavy chemical and caustic materials
- Advantages: High chemical corrosion resistance and heat resistance
- Our recommendation: 0% halogen



A large rectangular area filled with a light gray dashed grid, intended for handwritten notes or technical drawings.

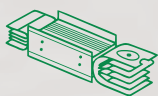
A large rectangular area filled with a light gray dashed grid, intended for handwritten notes or technical drawings.

SUSTAINABLE FUTURE

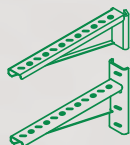
Sustainability Management at EAE Elektrik



As part of our goal to support sustainable development and green transformation, measuring, evaluating, and managing all economic, environmental, and social impacts resulting from our sustainability practices is a key governance priority for EAE Elektrik. We act with great care in analyzing, monitoring, and managing the economic, environmental, and social impacts and risks that arise throughout our value chain in both our national and global operations.



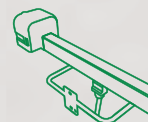
Busbar
Systems



Support
Systems



Cable Tray
Systems



Trolley Busbar
Systems



Fit-Out
Solutions

"We are working together with all our stakeholders to develop the electrical technologies that will build the future."

You can visit our sustainability website at
sustainability.eaeelectric.com



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