

Estoplate

High Strength Composite Laminate Structural Strengthening System For Concrete Structures

Description

Estoplate is a Carbon Fiber Laminates Strips, composite material for reinforcement of new and the strengthening of existing structures. The material exhibit excellent resistance towards corrosion and is able to dissipate energy as required in earthquake scenarios. It comes in various thicknesses of carbon strips (mm). They are known as;

- **Estoplate CLS** - High Strength Type
- **Estoplate CLM** - High Modulus Type

Uses

Estoplate is used for strengthening columns and beams of load bearing structures specifically where improvement to shear strength and deformation properties is required. Typical applications include piers, columns, connecting beams and slabs of railway and road bridges, buildings and towers.

In the following structures:

- Commercial, high rise
- Industrial plants
- Warehouses
- Bridges, Tunnels, Jetties
- Pipes, Culverts, Chimneys
- Power Station plants

Advantages

- Ultra high tensile strength modulus
- High thermal conductivity
- Electrical conductivity
- Excellent chemical resistance
- Excellent fatigue resistance
- Excellent to resistance to high temperatures
- Will not corrode
- Lightweight hence easy to handle and use
- Good Creep and Damping Properties
- Excellent fire resistance

Durability Description

Estoplate Strips tensile strength can be stable for 10,000 hours with accelerated exposure test (it is equivalent to 30 years natural exposure), providing:

It is used in strict accordance with the manufacturer's recommendations.

It is used within the design parameters stated in this datasheet.

It is used in conjunction with other approved building systems and materials.

Durability covers weathering and adhesive characteristics. For conditions outside those stated in this data sheet, contact Estop Technical Specifications Department.

Estop reserves the right to modify this time period, depending on but not limited to climatic, site and environmental conditions such as chemical attack, abrasion, water immersion and adverse climatic and temperature conditions.

Physical Properties

Estoplate Strips & Polymer Matrix Epoxy.

Carbon Fibre Content	All Type	70%
Binder Content	All Type	30%
Tensile Strength (MPa)	Estoplate CLS	> 3,100
	Estoplate CLM	> 2,800
E-Modulus (GPa)	Estoplate: CLS	> 170
	Estoplate CLM	> 210
Density of Carbon Fibre (g/cm ³)	Estoplate CLS	1.60
	Estoplate CLM	1.60
Elongation at Break (%)	Estoplate CLS	> 1.7
	Estoplate CLM	> 1.2
Grade of Binder	All Type	Polymer Matrix Epoxy Resin

Estoplate – Product Dimension (High Strength Type)

Type	Thickness (mm)	Width (mm)
Estoplate CLS 0512	1.2	50
Estoplate CLS 0514	1.4	50
Estoplate CLS 0612	1.2	60
Estoplate CLS 0614	1.4	60
Estoplate CLS 0812	1.2	80
Estoplate CLS 0814	1.4	80
Estoplate CLS 0912	1.2	90
Estoplate CLS 0914	1.4	90
Estoplate CLS 1012	1.2	100
Estoplate CLS 1014	1.4	100
Estoplate CLS 1212	1.2	120
Estoplate CLS 1214	1.4	120
Estoplate CLS 1512	1.2	150
Estoplate CLS 1514	1.4	150

Estoplate – Product Dimension (High Modulus Type)

Type	Thickness (mm)	Width (mm)
Estoplate CLM 0514	1.4	50
Estoplate CLM 0614	1.4	60
Estoplate CLM 0814	1.4	80
Estoplate CLM 0914	1.4	90
Estoplate CLM 1014	1.4	100
Estoplate CLM 1214	1.4	120

Estoplate Adhesive Properties

Mixing Ratio	2 : 1
Adhesive Strength (MPa)	> 3.5
Shear Strength (MPa)	> 15
Compressive Strength (MPa)	> 60
Tensile Strength (MPa)	> 30
Static E-Modulus (MPa)	>12,000

Application Instruction

Preparation

Concrete surfaces must be dry, smooth, sound and free from debris and loose material. Surfaces must be fully cured and free from contamination.

Through preparation of the substrate is vital with light grit blasting recommended to remove all deleterious substances and provide a suitable key. All dust and debris must be removed prior to proceeding. Blow holes or imperfections should be filled with Estorex Putty or Estocrete WR prior to application of **Estoplate Adhesive**.

Priming

The base and hardener components of **Estoplate Adhesive** should be thoroughly stirred before the two are mixed together.

Pour the hardener into a suitably sized mixing vessel and add the base resin into the hardener. The use of a heavy-duty slow speed, flameproof or air driven drill fitted with a mixing paddle is desirable. Mix these components in the quantities supplied taking care to ensure all containers are scraped clean.

Apply **Estoplate Adhesive** to the prepared substrate using a stiff brush, working the Adhesive well into the substrate at a coverage rate of 0.3kg/m².

Application

Arrange enough material, manpower and equipments to carry out the application within the resin's pot life. The base and hardener components of **Estoplate Adhesive** must be used up once mixed.

Immediately after the application of Estoplate Adhesive install the Estoplate once the Estoplate Adhesive cured.

Packing and Size

Estoplate Adhesive	
Base	10 kg
Hardener	5kg
Estoplate	100m / roll

Coverage

Estoplate Adhesive	0.3 kg/m ²
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Technical support

Estop offers a technical support package to specifiers, end-users and contractors, as well as on site technical assistance.

Storage

Estoplate Adhesive should be stored on pallets in dry conditions. Under these conditions the product will have a shelf life of 12 months.

If stored in extreme weather condition the shelf life may be reduced.

Additional information

Estop manufactures and offer a wide range of complementary products which includes waterstops, waterproofing products, grouts, anchors, specialized flooring products. In addition, a wide range of products formulated for repair and refurbishment of spalled concrete are available

Important Note

Estop products are guaranteed against defective materials and manufacture and are sold subject to its standard Terms and Conditions of Sale, copies of which may be obtained on request. Whilst Estop endeavors to ensure that any advice, recommendation, specification or information in may give is accurate and correct, it shall not, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given by it.