

FSE323H

HIGH-THIXOTROPY FIBRE-SATURATING EPOXY RESIN FOR OVERHEAD & VERTICAL CARBON FIBRE FABRIC APPLICATIONS

53 MPa

TENSILE STRENGTH

4.0 GPa

ELASTIC MODULUS

3 : 1

MIX RATIO (BY WEIGHT)

60 min

POT LIFE (23 °C)

DESCRIPTION

FSE323H is a two-component, high-thixotropy epoxy resin specifically formulated for saturating and bonding carbon fibre fabrics on overhead and vertical surfaces. Its elevated thixotropic index (≥ 3.0) prevents resin sagging and drainage during application, ensuring uniform fibre wet-out and consistent laminate quality in orientations where standard resins cannot maintain position. The 3 : 1 mix ratio by weight provides a simple, reliable batching process.

INTENDED USES

- Impregnation and bonding of FIDSTRONG FSC-series carbon fibre fabrics on overhead soffits and vertical surfaces
- Applications where resin drip or sag would compromise laminate quality or contaminate the work zone
- Flexural, shear, and confinement strengthening of reinforced concrete and masonry elements
- Seismic retrofit and structural rehabilitation of columns, beams, walls, and slabs
- Multi-layer laminate build-up for high-demand flexural or confinement applications

CHARACTERISTICS

- High thixotropy (index ≥ 3.0) — no drip or sag on overhead soffits and vertical faces, even with 600 g/m² fabrics
- 53 MPa tensile strength, 4.0 GPa modulus for effective stress transfer
- 3 : 1 mix ratio by weight — simple batching with clearly colour-coded components
- 60 min pot life at 23 °C — ample working time for large-area overhead applications
- Solvent-free, VOC-compliant — suitable for enclosed and occupied spaces
- Typical consumption: 0.8–1.0 kg/m² for 300 gsm fabric, 1.1–1.3 kg/m² for 600 gsm fabric

PRODUCT INFORMATION

PROPERTY	VALUE
Appearance	Component A + B mixed: grey
Mix Ratio	A : B = 3 : 1 by weight
Packaging	15 kg (A) + 5 kg (B) per kit, or customised packaging
Storage	Dry, away from direct sunlight, +5 °C to +35 °C
Shelf Life	18 months in original, unopened packaging

TECHNICAL PROPERTIES

MIXED / CURED RESIN — TESTED AT 23 °C / 50 % RH UNLESS STATED

PROPERTY	TEST METHOD	VALUE
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PROPERTY	TEST METHOD	VALUE
HANDLING (MIXED RESIN)		
Pot Life (500 g mass)	—	60 min
Touch-Dry Time	—	1.5 h
Full Cure	—	7 days
Service Temperature	—	-5 °C to +40 °C
Thixotropic Index	—	≥ 3.0
Non-volatile Content	—	≥ 99.5 %
MECHANICAL (CURED, 7 DAYS)		
Tensile Strength	ASTM D638	53 MPa
Tensile Elastic Modulus	ASTM D638	4.0 GPa
Elongation at Break	ASTM D638	2.3 %
Flexural Strength	ASTM D790	80 MPa
Compressive Strength	ASTM D695	90 MPa
ADHESION (CURED)		
Steel-to-Steel Tensile	—	≥ 40 MPa
Steel-to-Steel Shear	ASTM D1002	≥ 14 MPa
Bond to Concrete (pull-off)	ASTM C882	≥ 2.5 MPa (concrete failure)

CONSUMPTION

FABRIC WEIGHT	PRIMER COAT (FSE302)	SATURATING COAT / LAYER
200 g/m ²	0.3–0.4 kg/m ²	0.6–0.8 kg/m ²
300 g/m ²	0.3–0.4 kg/m ²	0.8–1.0 kg/m ²
600 g/m ²	0.3–0.4 kg/m ²	1.1–1.3 kg/m ²

Actual consumption depends on substrate porosity and surface profile. A trial application is recommended.

COMPATIBLE SYSTEM PRODUCTS

CODE	FUNCTION	NOTES
FSE302	Substrate primer	Adhesion-promoting epoxy primer; 2 : 1 mix ratio by weight
FSE502	Levelling adhesive	Substrate repair and surface regularisation before priming
FSC series	Carbon fibre fabrics	200 / 300 / 600 g/m ² unidirectional; multiple strength grades

APPLICATION INSTRUCTIONS

Step 1 — Surface Preparation

- Remove laitance, loose particles, oil, and coatings by abrasive blasting or grinding. Minimum concrete pull-off strength: 1.5 MPa.

Step 2 — Priming

- Apply FSE302 primer by brush or roller; ensure uniform coverage and full absorption into the substrate pore structure.
- Over-coat once primer is tack-free (typically 2–4 h at 23 °C) but before full cure.

Step 3 — Mixing

- Combine A : B at 3 : 1 by weight; mix with a low-speed paddle mixer for 3 min until a uniform colour is achieved. Use within the pot life.

Step 4 — Fabric Saturation and Bonding

- Apply a base coat to the primed substrate (0.3–0.4 kg/m²). Place pre-cut FSC fabric onto the wet resin.
- Roll firmly with a ribbed roller from centre outward to eliminate air and ensure full fibre wet-out. Apply saturating coat through the fabric until all fibres are encapsulated.
- For multi-layer applications, repeat the lay-up while the previous layer is still tacky.

Step 5 — Curing and Protection

- Protect from traffic and direct sunlight during cure (7 days at 23 °C). Apply a UV-protective top-coat or cementitious render after full cure.

LIMITATIONS

- Application temperature: +5 °C to +35 °C (substrate and ambient). Do not apply to standing-water surfaces.
- Substrate moisture content ≤ 4 % (ASTM D4263).
- All structural design must be prepared and certified by a licensed professional engineer (ACI 440.2R or equivalent).

HEALTH & SAFETY

NOTE

Refer to the current Safety Data Sheet (SDS) for handling, storage, and disposal. Wear chemical-resistant gloves, safety goggles, and respiratory protection in poorly ventilated areas. This TDS does not replace the SDS.

LEGAL NOTES

The information and recommendations in this document are given in good faith based on current knowledge and experience of the products when properly stored, handled, and applied under normal conditions. Differences in materials, substrates, and site conditions mean that no warranty in respect of merchantability or fitness for a particular purpose can be inferred from this information. The information does not relieve the user of the responsibility of testing products for their intended application. All orders are accepted subject to our current terms of sale and delivery. Refer to the most recent TDS at www.fidstrong.com.