

CI-LV FS Low-Viscosity Fast-Setting Injection Epoxy

CI-LV FS low-viscosity fast-setting structural injection epoxy is a two-component, high-modulus, high-solids, moisture-tolerant epoxy specially designed for pressure injection of concrete cracks and for increasing the bond between freshly placed repair mortars or concrete mixes and existing concrete when substrate temperatures are between 40°F (4°C) to 90°F (32°C). Available in 3-gallon bulk kits or convenient side-by-side cartridges dispensed through a static mixing nozzle using either a manual, battery-powered or pneumatic dispensing tool.

Features

- Chemically bonds with the concrete to provide a structural repair. CI-LV FS seals the crack from moisture, protecting rebar in the concrete from corrosion.
- Moisture-tolerant, can be used on dry and damp surfaces.
- Low surface tension allows the material to effectively penetrate narrow cracks.
- Formulated for maximum penetration under pressure.
- Non-shrink and resistant to oils, salts and mild chemicals.
- Can be used with metered pressure-injection equipment.
- Freeze-thaw resistant.

Applications

- Pressure injection
- Underwater pressure injection
- Gravity feed
- Flood coat
- Bonding agent

Product Information

Mix Ratio/Type	2:1
Mixed Color	Amber
Crack Width	0.016"–0.25" (0.4 mm–6 mm)
Shelf Life	24 months
Storage Temperature	45°F (7°C)–90°F (32°C)
Base Material Temperature	40°F (4°C)–90°F (32°C)
Volatile Organic Compound (VOC)	13 g/L mixed
Yield	231 in. ³ /US gal. (0.001 m ³ /L)
For Flood-Coat Applications	150–200 ft. ² /US gal. (3.7–4.9 m ² /L) depending on surface profile and porosity
Pot Life, 1 Quart	10 minutes at 72°F (22°C) 28 minutes at 50°F (10°C)
Thin Film (5 mil)	Set to touch: 1 hr. 45 min.
Set Time at 72°F, ASTM D5895	Dry through: 4 hr.
Manufactured in the US using global materials	

Code Reports, Standards and Compliance

ASTM C881 and AASHTO M235 Type I/II; Grade 1; Class B
 Type I/IV, Grade 1; Class C

Installation Instructions

Installation instructions are located at the following locations: pp. 210–215, product packaging or on the CI-LV FS Technical Data Sheet at strongtie.com/rps.

Accessories

See p. 209 for information on crack repair accessories.

CI-LV FS Packaging Information

Model No.	Capacity (ounces)	Packaging Type	Package Quantity	Carton Quantity	Dispensing Tools	Mixing Nozzle
CILVFS32	32	Side-by-side cartridge	1	5	ADT30S, ADT30P	EMN022 (included)
CILVFS3KT	384	3-gallon bulk kit	1 case of (3) gallon cans	—	Metering pumps offered by third-party manufacturers	—

1. Cartridge estimation guidelines are available at strongtie.com/apps.



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Technical Information

Compressive Strength

Cure Time	23°F (-5°C) psi (MPa)	40°F (4°C) psi (MPa)	60°F (16°C) psi (MPa)	72°F (22°C) psi (MPa)	Test Standard
1-hour cure	—	—	—	9,500 (65.5)	ASTM D695
2-hour cure	—	—	—	11,250 (77.6)	
4-hour cure	—	—	—	11,600 (80.0)	
8-hour cure	—	—	—	11,700 (80.7)	
16-hour cure	—	—	7,150 (49.3)	11,800 (81.4)	
24-hour cure	—	—	8,350 (57.6)	11,800 (81.4)	
3-day cure	—	6,600 (45.5)	12,800 (88.3)	12,800 (88.3)	
7-day cure	2,250 (15.5)	12,600 (86.9)	13,700 (94.5)	13,500 (93.1)	
14-day cure	2,850 (19.7)	13,700 (94.5)	14,500 (100.0)	13,600 (93.8)	
28-day cure	2,900 (20.0)	14,500 (100.0)	15,200 (104.8)	13,600 (93.8)	

Temperature Range	Class B 40°–60°F (4°C–16°C)	Class C >60°F (16°C)	Test Standard
Epoxy Classification	Types I, II; Grade 1 (LV)	Types I, IV; Grade 1 (LV)	ASTM C881
Viscosity — mixed ¹	2,000 cP	600 cP	ASTM D2556
Gel Time — 60 gram mass ¹	55 minutes	12 minutes	ASTM C881
Bond Strength, Slant Shear: Hardened to Hardened Concrete — 2-day cure ² Hardened to Hardened Concrete — 14-day cure ² Fresh to Hardened Concrete — 14-day cure ³	1,700 psi (11.7 MPa) 3,850 psi (26.5 MPa) 2,150 psi (14.8 MPa)	3,650 psi (25.2) 4,000 psi (27.6 MPa) 2,150 psi (14.8 MPa)	ASTM C882
Tensile Strength — 7-day cure ²	5,300 psi (36.5 MPa)	7,900 psi (54.5 MPa)	ASTM D638
Elongation at Break — 7-day cure ²	1.06%	1.91%	ASTM D638
Flexural Strength — 7-day cure ²	5,700 psi (39.3 MPa)	9,350 psi (64.5 MPa)	ASTM D790
Modulus of Elasticity in Compression — 7-day cure ²	442,000 psi (3,050 MPa)	439,000 psi (3,030 MPa)	ASTM D695
Heat Deflection Temperature — 7-day cure ³	122°F (50°C)		ASTM D648
Glass Transition Temperature — 7-day cure ³	132°F (56°C)		ASTM E1356
Water Absorption — 7-day cure ⁴	0.23%		ASTM D570
Linear Coefficient of Shrinkage ³	0.004		ASTM D2566
Coefficient of Thermal Expansion ³	4.78 x 10 ⁻⁵ in./in.°F 8.60 x 10 ⁻⁵ cm/cm°C		ASTM C531
Shore D Hardness — 24-hour cure ³	80		ASTM D2240
Shore D Hardness — 7-day cure ³	82		ASTM D2240
Adhesion to Concrete — 24-hour cure ³	1,100 psi (7.6 MPa)		ASTM D7234

1. Class B tested at 50°F (10°C), Class C tested at 72°F (22°C).

2. Class B cured at 40°F (4°C), Class C cured at 60°F (16°C).

3. Cured at 72°F (22°C).

4. Cured at 72°F (22°C), immersed in water 24 hours.

Technical Information — When Used As a Mortar

Tests performed at 1 part by volume of mixed CI-LV FS to 5 parts by volume of oven-dried sand.

Pot life: 40 minutes at 72°F (22°C).

Compressive Strength

Cure Time	40°F (4°C) psi (MPa)	60°F (16°C) psi (MPa)	72°F (22°C) psi (MPa)	Test Standard
1-day cure	3,650 (25.2)	7,800 (53.8)	9,150 (63.1)	ASTM C579
7-day cure	8,000 (55.2)	8,850 (61.0)	10,000 (68.9)	
28-day cure	8,100 (55.8)	8,950 (61.7)	10,150 (70.0)	

Temperature Range	72°F (22°C) psi (MPa)	Test Standard
Flexural Strength — 7-day cure	1,900 (13.1)	ASTM C580
Tensile Strength — 7-day cure	1,350 (9.3)	ASTM C307
Bond Strength, Slant Shear: Hardened to Fresh Mortar — 7-day cure	1,800 (12.4)	ASTM C882