



## **HIGH FLOW PILE JACKET EPOXY GROUT LPL-HF\***

Long Pot Life, High-Flow Underwater Epoxy Grout System

\*Patent pending

### **PRODUCT DESCRIPTION**

**Five Star® High Flow Pile Jacket Epoxy Grout LPL-HF** is a three-component, 100% solids, epoxy system specifically designed for underwater grouting and marine pile encapsulation with the Five Star® Pileform™ F Fiberglass Jacket engineered solution system. High Flow Pile Jacket Epoxy Grout LPL-HF is a high compressive strength material that installs with fast-fill rates and is non-segregating across installation temperatures from 40-100°F (4-38°C).

### **ADVANTAGES**

- Pourable, pumpable at low pump pressure
- High compressive strength
- No special storage requirements
- Wide installation temperature range 40-100°F (4-38°C)
- Does not contain highly toxic Nonylphenol
- Non-air-entraining/non-segregating during pumping
- High bond strength
- Technical support from Five Star Products

### **USES**

- Marine pile repair/encapsulation/protection when used with Five Star® PileForm™ F Fiberglass Jackets
- Engineered epoxy grouting system restores structural integrity and provides corrosion protection for concrete, steel and wood marine piles
- Excellent adhesion to masonry, concrete, wood, steel and most marine structural materials
- Piers, barrier and retaining walls, docks, wharves, bulkheads, jetties and breakwaters

### **PACKAGING AND YIELD**

High Flow Pile Jacket Epoxy Grout LPL-HF is a three-component system consisting of containers of resin and hardener, and polyethylene lined bags of aggregate. Product yield is approximately 1.38 cubic feet (39.1 L) with 3 bags of aggregate (150 lb / 68.1 kg).

### **SHELF LIFE**

Two years in original unopened packaging when stored in dry conditions; high relative humidity will reduce shelf life.

TYPICAL PROPERTIES			
	40°F (4°C)	70°F (21°C)	100°F (38°C)
<b>Compressive Strength</b> psi (MPa), ASTM C579 B* when cured/tested at:			
1 Day	500 (3.4)	3,500 (24.1)	4,500 (31.0)
3 Days	1,500 (10.3)	6,700 (46.2)	6,700 (46.2)
7 Days	6,000 (41.3)	9,800 (67.5)	9,500 (65.5)
28 Days	10,000 (68.9)	11,500 (79.3)	11,500 (79.3)
<b>Tensile Strength</b> , ASTM C307			
7 Days	1,800 (12.4)	2,400 (16.5)	2,200 (15.2)
<b>Flexural Strength</b> , ASTM C580			
7 Days		4,500 (31.0)	
<b>Tangent Flexural Modulus</b> , ASTM C580, psi (GPa)			
7 Days		2.0 x 10 <sup>6</sup> (13.8)	
<b>Bond to Concrete</b> , ASTM C882			
7 Days		2,200 (15.2)	
<b>Bond Strength to Steel</b> , ASTM C882			
7 Days		2,000 (13.8)	
<b>Working Time</b> (minutes)	> 240	90	60
<b>% Nonylphenol</b>		0.00%	

\*Does not contain Nonylphenol which is an EPA and REACH Regulated Marine Toxin. Materials tested per ASTM C 579 B. Rate of loading 0.25 inches per minute.

*The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result. Test methods are modified where applicable.*

## PLACEMENT GUIDELINES

- SURFACE PREPARATION:** All surfaces to be in contact with Five Star® High Flow Pile Jacket Epoxy Grout LPL-HF shall be free of marine growth, oil, grease, laitance, and other contaminants. Concrete must be clean, sound, and roughened to ensure a good bond.
- MIXING:** Materials should be stored in dry conditions. All components should be conditioned for 24 hours between 40°F and 100°F (4°C and 38°C) prior to use. For optimum ease of placement, condition all components to between 65°F and 85°F (18°C and 29°C). See chart below. Pour all Component B (hardener) into pail containing Component A (resin). Mix thoroughly by hand with a paddle or with a slow speed drill and paddle mixer to avoid air entrapment. Pour mixed liquids into mortar mixer (stationary barrel with moving blades). While mixing, slowly add Component C (aggregate) and mix only until aggregate is completely wet. Add Component C (aggregate) immediately after mixing Component A (resin) and Component B (hardener). Do not mix more material than can be placed in 75 minutes.

High Flow Pile Jacket Epoxy Grout LPL-HF	Flow	Working Time	1-Day Strength	28-Day Strength
Mixed & Placed at Temps Below 65°F (18°C)	Reduced	Increased	Reduced	Affected
Mixed & Placed at Temps Above 85°F (29°C)	Increased	Reduced	Increased	Unaffected

- METHODS OF PLACEMENT:** Five Star® High Flow Pile Jacket Epoxy Grout LPL-HF may be pumped or poured into place. For vertical flow applications simply pour or pump from the top of the opening, or pump into ports. A peristaltic pump is recommended for pumping applications.
- POST PLACEMENT PROCEDURES:** In-service operation may begin immediately after minimum required grout strength and modulus have been achieved.
- CLEAN UP:** Use a solvent or water and strong detergent solution on tools and equipment before material hardens. Use power washer on pump and mixing equipment. Sand may be used as an abrasive to aid in cleaning.

**NOTE: PRIOR TO APPLICATION, READ ALL PRODUCT PACKAGING THOROUGHLY.** For more detailed placement procedures, refer to Five Star® Design-A-Spec™ installation guidelines or call Five Star Products.

## CONSIDERATIONS

- Minimum temperature of substrate is 40°F (4°C) and rising.
- Do not add solvents to increase flowability.

## CAUTION

Component A - Irritant • Component B - Corrosive

Product is a strong sensitizer. Use of safety goggles and chemical resistant gloves are recommended. Use of a NIOSH/MSHA organic vapor respirator is recommended if ventilation is inadequate. Avoid breathing vapor. Avoid skin contact. PRIOR TO USE, REFER TO SAFETY DATA SHEET.

For worldwide availability, additional product information and technical support, contact your local Five Star distributor, local sales representative, or call Five Star Products at 1-800-243-2206.

PRODUCT SKU	DESCRIPTION	# UNITS / PALLET	UNIT SIZE
32181	Five Star® High Flow Pile Jacket Epoxy Grout LPL-HF System (3 bags of aggregate)	36 (A) 208 (B) 60 (C)	Resin (A): 14.2 lb. (6.5 kg) Hardener (B): 7.4 lb. (3.4 kg) Aggregate (C) 3 bags (50 lb. ea.) (22.7 kg ea.)

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