



# **RAPID EPOXY GROUT**

Fast Turnaround Precision Epoxy Grout

## **PRODUCT DESCRIPTION**

Five Star® Rapid Epoxy Grout is the only expansive, non-shrink, rapid strength gain epoxy grout designed for very fast turnaround precision grouting. It is a three component, 100% solids, solvent free system formulated with superior flowability. Five Star® Rapid Epoxy Grout exhibits positive expansion when tested in accordance with ASTM C827.

## **ADVANTAGES**

- Permanent support for machinery requiring precision alignment
- High eight-hour strengths for fast turnaround
- High flow for tight clearances down to 1/2 inch
- Excellent creep resistance
- Expansive, non-shrink, ASTM C827
- 95% Effective Bearing Area (EBA)
- Chemically resistant
- High temperature performance up to 250°F (121°C)
- Excellent adhesion to steel

## **USES**

- Grouting machine baseplates to maintain precision alignment under high impact and vibration down to 1/2 inch
- Fast turnarounds
- Operating temperatures up to 250°F (121°C)
- Aggressive chemical environments
- Installation of anchors and dowels
- Dynamic loads

## **PACKAGING AND YIELD**

Five Star® Rapid Epoxy Grout is a three component system consisting of resin, hardener and aggregate packaged separately in a pail and is available in a unit yielding approximately 0.50 cubic feet (14.2 liters) of hardened material.

## **SHELF LIFE**

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

### **TYPICAL PROPERTIES AT 70°F (21°C)**

<b>Compressive Strength, ASTM C579 B*</b>	Compressive Strength	Compressive Secant Modulus
8 Hours	8,000 psi (55.2 MPa)	$1.3 \times 10^6$ ( $0.9 \times 10^4$ MPa)
1 Day	14,000 psi (96.5 MPa)	$1.6 \times 10^6$ ( $1.1 \times 10^4$ MPa)
7 Days	15,000 psi (103.5 MPa)	$1.7 \times 10^6$ ( $1.2 \times 10^4$ MPa)
Tested at 180°F (82°C)	11,000 psi (75.9 MPa)	$1.2 \times 10^6$ ( $0.8 \times 10^4$ MPa)
<b>Height Change at 90°F (32°C), ASTM C827</b>	Positive Expansion	
<b>Effective Bearing Area</b>	95%	
<b>Creep, ASTM C1181, 1 Year</b>	$1.8 \times 10^{-3}$ in/in (mm/mm) at 140°F (60°C), 600 psi (4.1 MPa)	
<b>Tensile Strength, ASTM C307</b>	2,400 psi (16.5 MPa)	
<b>Flexural Strength, ASTM C580</b>	Flexural Strength	Flexural Secant Modulus
7 Days	5,000 psi (34.5 MPa)	$2.0 \times 10^6$ ( $1.3 \times 10^4$ MPa)
Tested at 180°F (82°C)	4,000 psi (27.6 MPa)	$1.4 \times 10^6$ ( $0.9 \times 10^4$ MPa)
<b>Coefficient of Expansion, ASTM C531</b>	$17 \times 10^{-6}$ in/in/°F ( $30 \times 10^{-6}$ mm/mm/°C)	
<b>Bond to Concrete, ASTM C882</b>	Concrete Failure	
<b>Working Time at 70°F (21°C)</b>	30 minutes	

*\*Rate of loading 0.25 inches per minute. The data shown above reflect typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result. Test methods are modified where applicable.*

## APPLICATION INFORMATION

<b>Minimum Plate Clearance</b>	½ in. (13 mm)	<b>Placement Depth</b>	½ - 3 in. (13 - 75 mm) > 3 in. (75 mm), contact Five Star
<b>Maximum In-Service Temperature</b>	250°F (121°C)		

### PLACEMENT GUIDELINES

Five Star® Rapid Epoxy Grout is capable of being installed at a temperature range from 55°F – 95°F (13°C – 35°C), however for optimum performance, the grout, environment, mixing equipment, and all surfaces in contact with the grout should be at temperatures between 70°F - 90°F (21°C and 32°C). After installation, maintain grout, substrate, and baseplate/equipment temperatures above 55°F (13°C) until grout reaches required compressive strength. **Flowability and strength gain are affected by lower and higher temperatures.** Refer to Five Star® Technical Bulletin (TB) 200 and 201 *Epoxy Cold and Hot Weather Grouting* for installation temperatures outside recommended ranges.

- 1. SURFACE PREPARATION:** Construction practices dictate concrete foundation should achieve its design strength before grouting. All surfaces to be in contact with Five Star® Rapid Epoxy Grout shall be dry and free of oil, grease, and other contaminants. Surfaces where epoxy grout bond is not desired must have a bond breaking material applied to them. To maximize bond, concrete surfaces should be prepared by acceptable means to remove the top surface to coarse aggregate exposure. A minimum 1/4 inch (6 mm) peak to valley surface profile is recommended. The steel baseplate bonding surface should be dry, clean, and free of oil, grease, and other bond inhibiting materials. To optimize bond development to steel, refer to TB419 *Steel Baseplate Considerations*. Isolation/expansion joints should be used on installations of larger dimensions / volumes and should be installed prior to equipment placement. Any existing cracks shall be brought to the project engineer's attention prior to grout installation. Refer to TB213 *Epoxy Grout Concrete Surface Preparation*; TB415 *Expansion joints in Grout Placement* for further details.
- 2. FORMWORK:** Formwork should be constructed and sealed 24-hours prior to the grout installation. Formwork shall be constructed of rigid non-absorbent materials, securely anchored, liquid-tight and strong enough to resist forces developed during grout placement. The clearance between formwork and baseplate shall be sufficient to allow for a headbox to be placed between the edge of the baseplate and the form. The clearance for remaining sides shall be 1 to 2 inches (25 - 50 mm). Refer to Five Star® TB411 *Grout Shoulder Configurations* for further details. Formwork and areas where bond is not desired must be treated with grease, paste wax, or similar material. Refer to Five Star® TB410 *Grout Formwork* for further details.
- 3. MIXING:** For mixing one unit, refer to TB416 *Single Unit Mixing Instructions*. For mixing multiple units in a mortar mixer (recommended maximum eight units at a time) begin by combining all the Component A (resin) into a separate container(s). Pour all corresponding Component B (hardener) jug into the container containing all Component A (resin). Mix thoroughly for 1 - 2 minutes (or until separate materials cannot be observed) with a paddle or with a slow speed drill. Mix slowly to avoid air entrapment. Immediately pour the mixed liquids (combined Components A & B) into a mortar mixer with blades not moving. Add one bag of Component C (aggregate) and start the mortar mixer blades. Add the remaining corresponding Component C (aggregate) bags. Mix only until aggregate is completely wetted out (no dry aggregate observed). Do not reduce aggregate loading or add solvents or water to increase flowability. Do not mix partial units.
- 4. PLACEMENT:** Five Star® Rapid Epoxy Grout may be poured into place. Use of a headbox is highly recommended. Placement should always be across the shortest distance. All grout shall be placed from one side to the other, maintaining contact with the bottom of the baseplate at all times. For grout depth less than ½ inch or greater than 3 inches (75 mm) contact Five Star Products. Refer to Five Star® TB412 *Grout Placement* for further details. If field testing of the grout is required, refer to TB210 *Proper Compressive Strength Testing - Epoxy Grouts*; TB417 *Field Sampling for Testing Requirements*.
- 5. POST-PLACEMENT:** Until initial set, ensure that grout maintains continuous contact with the bottom of the baseplate and formwork remains leak-free. No wet curing is allowed. Protect from direct sun exposure until initial set. Finishing of exposed surfaces is aided by using a solvent wiped trowel just before material becomes unworkable. Final anchor bolt torque and in-service operation may begin immediately after minimum required grout strength and a minimum compressive modulus of 1.0 x 10<sup>6</sup> psi (6.9 x 10<sup>3</sup> MPa) has been achieved. Refer to Five Star® TB413 *Grout Finishing* for further details.
- 6. CLEAN UP:** All tools and equipment may be cleaned with soap and water before the material hardens. Sand or a similar abrasive may be used with the soap and water to aid in the clean-up.

For additional Five Star® Technical Bulletins, visit [FiveStarProducts.com](http://FiveStarProducts.com). For further questions, or if additional information is required, contact your local Five Star® Technical Sales Representative at 1-800-243-2206.

### CAUTION

Irritant, toxic, strong sensitizer. Contains epoxy resin and amine. This product may cause skin irritation. Do not inhale vapors. Provide adequate ventilation. Protect against contact with skin and eyes. Wear rubber gloves, long sleeve shirt, goggles with side shields. In case of contact with eyes, flush repeatedly with water and contact a physician. Areas of skin contact should be promptly washed with soap and water. Do not take internally. Keep product out of reach of children. **PRIOR TO USE, REFER TO SAFETY DATA SHEET.**

SKU/PRODUCT CODE	DESCRIPTION	#UNITS/PALLET	UNIT SIZE (WEIGHT   VOLUME - A & B)
32500	Five Star® Rapid Epoxy Grout	24	Resin (A): 9.5 lbs. (4.3 kg)   1.01 gal (3.82 L) Hardener (B): 1.5 lbs. (0.7 kg)   0.18 gal (0.69 L) Aggregate (C): One Bag 50 lbs. (22.7 kg)

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Specifications Subject to Change.

For most current version of datasheet, go to [FiveStarProducts.com](http://FiveStarProducts.com)

**Five Star Products, Inc.**  
**Corporate Headquarters**  
2 Enterprise Drive, Suite 303  
Shelton, CT 06484 USA  
Tel: +1 203-336-7900 • Fax: +1 203-336-7930  
[FiveStarProducts.com](http://FiveStarProducts.com)



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