



# DP EPOXY GROUT DP EPOXY GROUT HIGH FLOW

Dual-Purpose, Deep Pour Precision Grout

## PRODUCT DESCRIPTION

Five Star® DP Epoxy Grout is the only expansive, non-shrink, low exothermic epoxy system for machinery grouting. This versatile, dual purpose product is formulated for single, large volume placements and may be used as thin as 1/2 inch (13 mm) or as deep as 36 inches (915 mm) dependent on specific placement requirements. Five Star® DP Epoxy Grout is a three component, 100% solids, solvent-free system formulated to provide high-strength and superior creep resistance combined with the highest effective bearing area. Five Star® DP Epoxy Grout exhibits positive expansion when tested in accordance with ASTM C 827.

## ADVANTAGES

- Permanent support for machinery requiring precision alignment
- May be used as thin as 1/2 inch (13 mm) or as deep as 36 inches (915 mm)
- Low exothermal properties with early strength development
- Long working time
- Solvent-free clean up
- Adjustable flow for various conditions
- Expansive, non-shrink per ASTM C 827
- Superior creep resistance
- Chemically resistant
- 95% effective bearing area (EBA) when following proper grouting procedures
- Excellent adhesion to steel

## USES

- Large volume applications
- Foundation rebuilds and skid mounted equipment
- Precision alignment under dynamic load conditions
- Vibration dampening for rotating equipment
- Aggressive chemical environments
- Support of tanks, vessels and rotating equipment
- Installation of anchors and dowels
- Wind turbine baseplates

## PACKAGING AND YIELD

Five Star® DP Epoxy Grout is a three-component system consisting of resin, hardener, and polyethylene lined bags of aggregate.

Five Star® DP Epoxy Grout (Standard Flow) includes five bags of aggregate for a unit yield of approximately 2.0 cubic feet (56.6 liters) of hardened material.

Five Star® DP Epoxy Grout High Flow is available with four bags of aggregate for a unit yield of approximately 1.75 cubic feet (49.6 liters) of hardened material. Five Star® DP Epoxy Grout High Flow is also available in a smaller unit size (one bag of aggregate) yielding approximately 0.44 cubic feet (12.5 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)

|                                                                                 | DP Epoxy Grout High Flow 4-bag                                  | DP Epoxy Grout (Standard) 5-bag                                 |                                            |                                                 |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------|-------------------------------------------------|
| Height Change, ASTM C827, at 90°F (32°C)                                        | Positive Expansion                                              | Positive Expansion                                              |                                            |                                                 |
| Effective Bearing Area                                                          | 95%                                                             | 95%                                                             |                                            |                                                 |
| Creep, ASTM C1181, 1 year<br>400 psi (2.8 MPa) 140°F (60°C)                     | 4.3 x 10 <sup>-3</sup> in/in (mm/mm)                            | 3.7 x 10 <sup>-3</sup> in/in (mm/mm)                            |                                            |                                                 |
| Tensile Strength, ASTM C307                                                     | 2,000 psi (13.8 MPa)                                            | 2,100 psi (14.5 MPa)                                            |                                            |                                                 |
| Flexural Strength, ASTM C580                                                    | 4,000 psi (27.6 MPa)                                            | 3,800 psi (26.2 MPa)                                            |                                            |                                                 |
| Coefficient of Thermal Expansion, ASTM C531                                     | 15 x 10 <sup>-6</sup> in/in/°F (27 x 10 <sup>-6</sup> mm/mm/°C) | 14 x 10 <sup>-6</sup> in/in/°F (25 x 10 <sup>-6</sup> mm/mm/°C) |                                            |                                                 |
| Bond to Concrete, ASTM C882                                                     | Concrete Failure                                                | Concrete Failure                                                |                                            |                                                 |
| Working Time at 70°F (21°C)<br>May be affected by colder & warmer temperatures. | 60 Minutes                                                      | 90 Minutes                                                      |                                            |                                                 |
| Compressive Strength ASTM C579 B*                                               | High Flow Compressive<br>Strength psi (MPa)                     | High Flow Compressive<br>Modulus psi (MPa)                      | Standard Compressive<br>Strength psi (MPa) | Standard Compressive<br>Modulus psi (MPa)       |
| 1 Day                                                                           | 9,000 (62.1)                                                    | 1.4 x 10 <sup>6</sup> (9.7 x 10 <sup>3</sup> )                  | 11,000 (75.9)                              | 1.5 x 10 <sup>6</sup> (10.4 x 10 <sup>3</sup> ) |
| 7 Days                                                                          | 13,000 (89.7)                                                   | 1.9 x 10 <sup>6</sup> (13.1 x 10 <sup>3</sup> )                 | 14,000 (96.6)                              | 2.0 x 10 <sup>6</sup> (13.8 x 10 <sup>3</sup> ) |
| Post-cured at 140°F (60°C)                                                      | 14,500 (100)                                                    | 2.0 x 10 <sup>6</sup> (13.8 x 10 <sup>3</sup> )                 | 15,500 (106.9)                             | 2.2 x 10 <sup>6</sup> (15.2 x 10 <sup>3</sup> ) |

\*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.

## APPLICATION INFORMATION

| DP Epoxy Grout High Flow       | 4-bag                                                            |
|--------------------------------|------------------------------------------------------------------|
| Minimum Plate Clearance        | ½ in. (13 mm)                                                    |
| Placement Depth                | ½ - 18 in. (13 - 457 mm)<br>> 18 in. (457 mm), contact Five Star |
| Maximum In-Service Temperature | 180°F (82°C)                                                     |

| DP Epoxy Grout (Standard)      | 5-Bag                                                            |
|--------------------------------|------------------------------------------------------------------|
| Minimum Plate Clearance        | 1 in. (25 mm)                                                    |
| Placement Depth                | 1 - 36 in. (25 - 915 mm)<br>> 36 in. (915 mm), contact Five Star |
| Maximum In-Service Temperature | 180°F (82°C)                                                     |

### PLACEMENT GUIDELINES

Five Star® DP Epoxy Grout / High Flow is capable of being installed at an ambient 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.

- SURFACE PREPARATION:** Construction practices dictate concrete foundation should achieve its design strength before grouting. All surfaces to be in contact with Five Star® DP Epoxy Grout / High Flow shall be dry and free of oil, grease, laitance, 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 shall 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.
- 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 should 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 in. (25 - 50 mm). Refer to Five Star® TB411 *Grout Shoulder Configurations* for further details. Formwork, anchor bolts, jack screws/bolts, and areas where bond is not desired should be treated with grease, paste wax, or similar material. Refer to Five Star® TB410 *Grout Formwork* for further details.
- MIXING:** For Five Star DP® Epoxy Grout High Flow 1-bag small unit refer to TB416 *Single Unit Mixing Instructions* For all other unit sizes, begin by pouring all of Component B (hardener) into the pail containing 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. Slowly add the remaining bags (4 bags DP Epoxy Grout; 3 bags DP Epoxy Grout High Flow) and mix only until aggregate is completely wetted out (no dry aggregate observed). Do not add solvents or water to increase flowability. Do not mix partial units. Under special conditions, aggregate may be reduced to 3 1/2 bags, contact Five Star Products. If unable to follow instructions above, contact Five Star Products.
- PLACEMENT:** Five Star® DP Epoxy Grout/High Flow may be poured or pumped 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 until final set. For grout depth greater than 36 inches (915 mm) for DP Epoxy Grout or greater than 18 inches (457 mm) for DP Epoxy Grout High Flow or low clearance conditions requiring increased flowability 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* and TB417 *Field Sampling for Testing Requirements*.
- 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.
- 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)                                                                                                                    |
|--------------------|------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 33610              | Five Star® DP Epoxy Grout (Standard 5-bag)                       | 36 (4 pallets) | Resin (A): 20.9 lbs. (9.5 kg)   2.28 gal (8.63 L)<br>Hardener (B): 6.3 lbs. (2.9 kg)   0.76 gal (2.89 L)<br>Aggregate (C): 5 Bags 50 lbs. ea (22.7 kg) |
| 33155              | Five Star® DP Epoxy Grout High Flow (High Flow 4-bag)            | 36 (4 pallets) | Resin (A): 20.9 lbs. (9.5 kg)   2.28 gal (8.63 L)<br>Hardener (B): 6.3 lbs. (2.9 kg)   0.76 gal (2.89 L)<br>Aggregate (C): 4 Bags 50 lbs. ea (22.7 kg) |
| 33175              | Five Star® DP Epoxy Grout High Flow (High Flow 1-bag small unit) | 24             | Resin (A): 5.3 lbs. (2.4 kg)   0.59 gal (2.23 L)<br>Hardener (B): 1.6 lbs. (0.7 kg)   0.17 gal (0.66 L)<br>Aggregate (C): 1 One Bag 50 lb. (22.7 kg)   |

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Specifications Subject to Change.

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