

DESCRIPTION

Five Star® HP Epoxy Grout is a high-performance expansive, non-shrink, epoxy system for supporting equipment requiring precision alignment. Five Star HP Epoxy Grout is a three component, 100% solids, solvent-free system formulated to exhibit high early strength combined with the highest creep resistance at elevated temperatures. Five Star HP Epoxy Grout exhibits positive expansion when tested in accordance with ASTM C 827.

KEY BENEFITS

- Permanent support for machinery requiring precision alignment
- High early strength
- Start-up in 16 hours or less
- 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) is typically achieved following proper grouting procedures
- Excellent adhesion to steel

TYPICAL APPLICATIONS

- High performance machinery grouting
- Crane rail grouting
- Precision alignment under dynamic load conditions
- Vibration dampening filler for rotating equipment
- Support of chemical tanks, vessels and rotating equipment
- Aggressive chemical environments
- Installation of anchors and dowels
- Wind turbine baseplates
- Available for Nuclear Safety Zone Applications

SHELF LIFE & STORAGE

1 year in original unopened packaging when stored in dry conditions. High relative humidity will reduce the shelf life.

TECHNICAL DATA

Typical Properties at 21°C

	Standard	High Flow
Clearances	4 to 6 inches (100 – 150mm)	1 to 4 inches (25 – 100mm)
Height Change ASTM C 827 at 32°C	Positive Expansion	Positive Expansion
Effective Bearing Area	95%	95%
Creep ASTM C 1181, 1 year, 2.8MPa, 60°C	1.2×10^{-3} mm/mm	2.0×10^{-3} mm/mm
Tensile Strength ASTM C 307	16.6MPa	13.8MPa
Flexural Strength ASTM C580	33.1MPa	30.4MPa
Coefficient of Expansion ASTM C 531	30×10^{-6} mm/mm/°C	32×10^{-6} mm/mm/°C
Bond to Concrete ASTM C 882	Concrete Failure	Concrete Failure
Working Time @21°C	60 minutes	45 minutes

Compressive Strength – ASTM C 579 B*

	Standard Compressive Strength (MPa)	Standard Compressive Modulus (MPa)	High Flow Compressive Strength (MPa)	High Flow Compressive Modulus (MPa)
16hrs	75.9	11.0×10^3	69.0	10.4×10^3
1 day	103.5	13.8×10^3	96.6	13.1×10^3
7 days	113.9	15.2×10^3	110.4	14.5×10^3
Post Cure d @60 °C	120.8	17.2×10^3	117.3	15.9×10^3

*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 occur on site. Test methods are modified where applicable.



► PACKAGING & YIELD

Five Star® HP Epoxy Grout is a three- component system consisting of partially filled containers of resin, hardener, and polyethylene lined bags of aggregate. Five Star HP Epoxy Grout – Standard Flow includes five bags of aggregate for a unit yield of approximately 56.6 litres of hardened materials. When maximum flow is required, Five Star® HP Epoxy Grout – High Flow is available with four bags of aggregate for a unit yield of approximately 49.6 litres of hardened material.

► APPLICATION GUIDELINES

NOTE: Prior to application, read all product data & packaging thoroughly. For more detailed placement procedures, refer to Five Star's Design-A-Spec installation guidelines.

SURFACE PREPARATION:

All surfaces to be in contact with Five Star® HP Epoxy Grout shall be free of oil, grease, laitance and other contaminants. Concrete must be clean, sound, dry and roughened to ensure a good bond. An SSPC-SP6 commercial finish on all metal surfaces will optimize bond development to steel.

FORMWORK:

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. The clearance for remaining sides shall be 1 to 2 inches (25-50mm). Areas where bond is not desired must be treated with paste wax or polyethylene. Isolation joints may be necessary depending on pour dimensions. Please contact your local Normet technical representative for further information.

MIXING:

For optimum performance, all components should be conditioned to between 21°C and 27°C prior to use. 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). Working time is approximately 60 minutes (45 minutes High Flow) when temperatures are at 21°C.

METHODS OF PLACEMENT:

Five Star® HP Epoxy Grout may be poured into place. All grout shall be placed from one side to the other, maintaining contact with the bottom of the baseplate at all times. When possible, use of a headbox is highly recommended (refer to the Five Star's Technical Bulletin "Head Box and Plunger" for guidelines). For clearances greater than six inches (150mm) or volumes more than 20 cubic feet (566 litres), use Five Star® DP Epoxy Grout or seek technical advice from your Normet representative.

POST-PLACEMENT PROCEDURES:

Final finishing should ensure material is flush with bottom edge of baseplate. Finishing of exposed surfaces is aided by using a solvent wiped trowel just before material becomes workable. In-service operation may begin immediately after minimum required grout strength and modulus have been achieved.

CLEAN UP:

All tools and equipment may be cleaned with water and strong detergent solution before material hardens. Sand may be used as an abrasive. A suitable solvent is required for clean up of material after hardening.

CONSIDERATIONS

- Flowability and strength gain are adversely affected by lower temperatures
- For placement temperatures between 13°C or above 32°C, refer to Five Star's Design-A-Spec
- To obtain bond, concrete shall be visibly free of surface moisture.
- When clearances are outside the recommended range or when exceeding maximum placement volumes, contact Normet representative.
- Do not add solvents to increase flowability.
- For continuous operating temperatures exceeding 82°C, contact Normet representative.
- Construction practices dictate concrete foundation should achieve its design strength before grouting.

► **HEALTH & SAFETY**

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 Material Safety Data Sheet.