

# FIVE STAR® FLUID GROUT 100

High Performance Precision Nonshrink Fluid Grout

## PRODUCT DESCRIPTION

Five Star® Fluid Grout 100 is the industry's leading cement-based, nonmetallic, nonshrink fluid grout for supporting machinery and equipment. It is formulated with Air Release technology that combines high performance with the greatest reliability. When tested in accordance with ASTM C 827, Five Star Fluid Grout 100 exhibits positive expansion. Five Star Fluid Grout 100 meets the performance requirements of ASTM C 1107-02 and CRD-C 621-93 specifications for nonshrink grout for grades A, B, and C over a wide temperature range, 40°F - 90°F (4°C - 32°C) and a long working time.

## ADVANTAGES

- Air release technology
- Placement within tight clearances down to 1/2 inch
- Early cut back (3 hours)
- High 24 hour strength
- Permanent support for machinery requiring precision alignment
- Does not contain gas generating additives, such as aluminum powder
- Nonshrink from the time of placement
- 95% Effective Bearing Area (EBA) is typically achieved following proper grouting procedures
- Formulated with Devoider® for optimum load transfer
- Locally manufactured under strict quality control standards

## USES

- Grouting clearances to one-half inch
- Grouting of anchors and dowels
- Grouting of machinery and equipment to maintain precision alignment
- Nonshrink grouting of structural steel and precast concrete
- Preplaced aggregate grouting
- Support of tanks and vessels

## TECHNICAL SUPPORT

Five Star Products maintains the industry's foremost Technical Support Group:

- Over 50 years of experience in precision grouting
- Technical Center staffed with field experienced application specialists
- Design-A-Spec™ for engineering specification assistance
- Experienced representatives for field service
- Corporate research laboratory available to customize products for unique applications

## PACKAGING AND YIELD

Five Star Fluid Grout 100 is packaged in heavy-duty, polyethylene lined bags containing 55 lb (24.9 kg), yielding approximately one-half cubic foot (14.2 liters) of hardened material at maximum water.

## SHELF LIFE

One year in original unopened packaging when stored in dry conditions. Higher humidity will reduce the shelf life.

| TYPICAL PROPERTIES AT 73°F (23°C)                   |                               |                            |
|---|-------------------------------|----------------------------|
| Early Height Change, ASTM C 942 (C109 Restrained)   | 0.0 - 4.0%                    |                            |
| Hardened Height Change, ASTM C 1090                 | 0.0 - 0.3%                    |                            |
| Effective Bearing Area                              | 95%                           |                            |
| Bond Strength, ASTM C 882                           | 2000 psi (13.8 MPa) / 28 Days |                            |
| Pull-out Strength, Shear Bond, 135 ksi threaded bar | 2000 psi (13.8 MPa) / 7 Days  |                            |
| Compressive Strength, ASTM C 942 (C109 Restrained)  | Minimum Water <sup>1</sup>    | Maximum Water <sup>2</sup> |
| 1 Day   | 5800 psi (40.0 MPa)           | 3500 psi (24.2 MPa)        |
| 3 Days  | 7500 psi (51.8 MPa)           | 6000 psi (41.4 MPa)        |
| 7 Days  | 8000 psi (55.2 MPa)           | 6500 psi (44.9 MPa)        |
| 28 Days   | 10000 psi (69.0 MPa)          | 8000 psi (55.2 MPa)        |

<sup>1</sup> 100 - 125% flow on flow table, CRD-C 621 (ASTM C 230, 5 drops in 3 seconds).

<sup>2</sup> 20 to 30 second flow by Corps of Engineers Flow Cone Method, CRD-C 611.

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.

## PLACEMENT GUIDELINES

1. **SURFACE PREPARATION:** All surfaces in contact with Five Star® Fluid Grout 100 shall be free of oil, grease, laitance and other contaminants. Concrete must be clean, sound and roughened to ensure a good bond. Soak concrete surface for 8 to 24 hours prior to application with liberal quantities of potable water, leaving the concrete saturated and free of standing water.
  2. **MIXING:** Mix Five Star Fluid Grout 100 thoroughly for approximately four to five minutes to a uniform consistency with a mortar mixer. A drill and paddle mixer is acceptable for single bag mixes. For optimum performance, maintain grout at ambient temperatures between 40°F and 90°F (4°C and 32°C). Use heated or chilled water to help adjust working time begin by mixing Five Star Fluid Grout 100 with 4 1/2 quarts potable water per 55 lb. bag. Mix for approximately two minutes add additional water to achieve a flow of 20 - 30 seconds through flow cone per ASTM C 939. Do not exceed a flow of 20 seconds. Do not exceed a total of six quarts of water per 55 lb. bag. Working time is approximately 30 minutes at 73°F (23°C). Follow printed instructions on the package.
  3. **METHODS OF PLACEMENT:** Five Star Fluid Grout 100 may be poured or pumped into place. Minimum placement thickness is 1/2 inch. For pours over six inches in depth contact the Five Star Products Technical Center at (800) 243-2206.
  4. **POST-PLACEMENT PROCEDURES:** Grout shoulders may be cut back in approximately three to four hours after placement at 70°F. Five Star Fluid Grout 100 shall be wet cured for a minimum of three days, or coated with an approved curing compound after a minimum 24 hour wet cure. In-service operation may begin immediately after the required grout strength has been reached.
- NOTE:** PRIOR TO APPLICATION, READ ALL PRODUCT PACKAGING THOROUGHLY. For more detailed placement procedures, refer to Design-A-Spec™ installation guidelines or call the Five Star Products Technical Center at (800) 243-2206.

## LIMITATIONS

- At time of placement, if temperatures of equipment and surfaces are not between 40°F and 90°F (4°C and 32°C), refer to Design-A-Spec™ for cold and hot weather grouting procedures.
- Never exceed the maximum water content as stated on the bag or add an amount that will cause segregation.
- Construction practices dictate concrete foundation should achieve its design strength before grouting.
- Do not hand mix Five Star Fluid Grout 100.

## CAUTION

Contains cementitious material and crystalline silica. International Agency for Research on Cancer has evaluated that there is sufficient evidence for the carcinogenicity of inhaled crystalline silica to humans. Take appropriate measures to avoid breathing dust. Avoid contact with eyes and contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Immediately call a physician. Wash skin thoroughly after handling. Keep product out of reach of children. PRIOR TO USE, REFER TO MATERIAL SAFETY DATA SHEET.

For worldwide availability, additional product information and technical support, contact your local Five Star distributor, local sales representative, or you may call Five Star's Technical Center at (800) 243-2206.

**Five Star Products, Inc.**  
**Corporate Headquarters**  
750 Commerce Drive  
Fairfield, CT 06825  
Tel: 203-336-7900  
Fax: 203-336-7930  
<http://www.fivestarproducts.com>

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