



# COMMERCIAL GRADE FASTSET™ NON-SHRINK GROUT

PRODUCT No. 1585-09, -50, -20

## DIVISION 3 & 32

03 01 00 Maintenance of Concrete  
03 31 00 Structural Concrete  
03 62 00 Non-Shrink Grouting

### PRODUCT DESCRIPTION

QUIKRETE Commercial Grade FastSet® Non-Shrink Grout is a high early strength, non-metallic, fast setting, commercial grade grout meeting ASTM C1107, and repair mortar meeting ASTM C928 R3, that requires only the addition of water.

### PRODUCT USE

QUIKRETE Commercial Grade FastSet® Non-Shrink Grout is a dual-purpose product. As a fluid grout it is used for anchoring and grouting of anchor bolts, retrofitted reinforcing steel, steel column bases, bearing plates, precast concrete keyways and other installations that require high early and high ultimate strength. As a repair mortar it is used to make partial depth or full depth repairs to roads, bridges, industrial floors and other concrete surfaces. Non-shrink characteristics make it stable and capable of handling load transfers.

### SIZES

QUIKRETE Commercial Grade FastSet® Non-Shrink Grout is available in:

- 60 lb (27.2 kg) bags
- 50 lb (22.6 kg) pails
- 20 lb (9 kg) pails

### YIELD

- Yield will vary with water content. When used as a fluid grout, a 60 lb (27.2 kg) bag will yield approximately 0.58 ft<sup>3</sup> (16.4 L). Yield will be reduced to approximately 0.55 ft<sup>3</sup> (15.5 L) per bag at a flowable consistency. As a repair mortar placed at a stiff gel-like consistency, a 60 lb (27.2 kg) bag will yield approximately 0.52 ft<sup>3</sup> (14.7 L). When extended with 30 lb (13.6 kg) of high quality minus 1/2 in (minus 13 mm) gravel, a 60 lb (27.2 kg) bag will yield approximately 0.7 ft<sup>3</sup> (19.8 L).

### TECHNICAL DATA

#### APPLICABLE STANDARDS

- ASTM C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or [50-mm] Cube Specimens)
- ASTM C143 Standard Test Method for Slump of Hydraulic Cement Concrete
- ASTM C157 Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete
- ASTM C191 Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle



- ASTM C672 Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
- ASTM C 882 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear
- ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete
- ASTM C939 Standard Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)
- ASTM C1090 Standard Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic-Cement Grout
- ASTM C1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink)
- ASTM C1437 Standard Test Method for Flow of Hydraulic Cement Mortar
- US Army Corps of Engineers (COE) CRD-C 621 Specification for Non-Shrink Grout
- ICRI Guideline No. 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair
- ACI 305R Guide to Hot Weather Concreting
- ACI 306R Guide to Cold Weather Concreting

### PHYSICAL/CHEMICAL PROPERTIES

QUIKRETE Commercial Grade FastSet® Non-Shrink Grout complies with the physical requirements of ASTM C1107 and CRD 621 when used as a grout at fluid consistency. Typical results, obtained for QUIKRETE Commercial Grade FastSet® Non-Shrink Grout when used as a grout at 73.5 °F ± 3.5 °F (23.0 °C ± 2.0 °C), are shown in Table 2. QUIKRETE Commercial Grade FastSet® Non-Shrink Grout also complies with the specifications of ASTM C928 R3 when mixed to a stiff gel-like consistency. Typical results obtained with QUIKRETE Commercial Grade FastSet® Non-Shrink Grout used as a repair mortar are shown in Table 3.

## **INSTALLATION**

### **SURFACE PREPARATION**

Wear the appropriate personal protective equipment. All grouting surfaces should be clean and free of foreign substances including corrosion, if present on steel. Remove all spalled areas and areas of unsound concrete. If using the material as a repair mortar, the repair area should have a vertical edge of ½ in (13 mm) or more. Preparation work done on the grouting surfaces should be completed by high pressure water blast, breaker, hammer, or other appropriate mechanical means to obtain a properly prepared surface. Saturate repair area with clean water before grouting to ensure saturated surface dry (SSD) condition. No standing water should be left in the repair area. Refer to current ICRI Guideline 310.2R for additional surface preparation information.

### **INSTRUCTIONS FOR USE AS A GROUT**

#### **MIXING**

**WEAR IMPERVIOUS GLOVES**, such as nitrile when handling product. QUIKRETE Commercial Grade FastSet® Non-Shrink Grout should be mechanically mixed for minimum of 3 minutes using a 5 gallon (19 L) bucket with a ½ in (13 mm) drill and paddle mixer. For larger applications, a standard mortar mixer may be used. Add only enough water to achieve the flow required for the application. Add the powder to the water and mix to a lump free consistency. Typical starting water contents can be found in Table 1.

**TABLE 1 TYPICAL WATER DEMAND PER 60 lb (27.2 kg) BAG**

<u>Consistency</u>	<u>Volume</u>
Plastic	4-3/4 qt (4.5 L)
Flowable	5-1/2 qt (5.2 L)
Fluid	6-1/3 qt (6.0 L)

#### **APPLICATION AS A GROUT**

**WEAR IMPERVIOUS GLOVES**, such as nitrile when handling product. Place the grout quickly and continuously using proper consolidation techniques when possible (i.e. light rodding, vibrating, tamping, etc.) to eliminate air bubbles.

#### **CURING AS A GROUT**

A damp cure of at least 1 day is necessary to control the non-shrink characteristics and maintain strength levels.

### **INSTRUCTIONS FOR USE AS A REPAIR MORTAR**

#### **MIXING**

**WEAR IMPERVIOUS GLOVES**, such as nitrile when handling product. Mechanically mix QUIKRETE Commercial Grade FastSet® Non-Shrink Grout for 3 to 5 minutes using a standard concrete or mortar mixer. Use approximately 3-3/4 quarts (3.5 L) of clean potable water per 60 lb (27.2 kg) bag of QUIKRETE Commercial Grade FastSet® Non-Shrink Grout. Adjust water, if needed, to achieve a place-able consistency. Exceeding an ASTM C1437 flow of 120% is not recommended, as it may cause a reduction in performance of the product. Where large quantities of material are needed for patches deeper than 2 in (50 mm) QUIKRETE Commercial Grade FastSet® Non-Shrink Grout may be extended with 30

lb (13.6 kg) of -1/2 in (-13 mm) aggregate per 60 lb (27.2 kg) bag. The coarse aggregate used should be in SSD condition and meet ASTM C33 requirements. Adjust water, if needed, to achieve a place-able consistency. Exceeding an ASTM C143 slump of 6 inches (150 mm) is not recommended, as it may cause a reduction in performance of the product.

#### **APPLICATION AS A REPAIR MORTAR**

**WEAR IMPERVIOUS GLOVES**, such as nitrile when handling product. Fill the repair area completely working continuously from one end to the other. Avoid partial depth fills which could lead to cold joints. Consolidate the material using hand tamping and/or chopping with a shovel. It is particularly important to compact around the edges of the forms or patches. Mechanical vibration should be avoided in areas that will be exposed to de-icing salts.

After QUIKRETE Commercial Grade FastSet® Non-Shrink Grout has been compacted and spread to completely fill the forms without air pockets, screed the surface and then apply a trowel or broom finish as desired.

#### **CURING AS A REPAIR MORTAR**

QUIKRETE Commercial Grade FastSet® Non-Shrink Grout is often placed in service within a few hours after it sets, so conventional moist curing methods may not be practical. Curing compounds such as QUIKRETE® Acrylic Concrete Cure and Seal (#8730) provide the easiest and most convenient method of curing. Curing compounds should be applied via appropriate methods, after final set has been reached.

The application of epoxy coatings over QUIKRETE Commercial Grade FastSet® Non-Shrink Grout may be done in as little as 6 hours. Consult with the epoxy coating manufacturer for their recommendations. Test a small area to evaluate epoxy performance and adhesion prior to applying full-scale.

#### **PRECAUTIONS**

- Additions of cement or other materials (other than gravel when extended as previously noted) will eliminate the designed product qualities
- Water quantities may be affected by temperature, mixing method, and batch size
- QUIKRETE Commercial Grade FastSet® Non-Shrink Grout should not be re-tempered
- Mix no more than can be placed in 15 to 20 minutes, depending on the consistency
- Follow ACI 305R when using product in hot weather
- Follow ACI 306R when using product in cold weather
- Use a consistent water temperature, when mixing multiple batches, to prevent performance fluctuations

**TABLE 2 TYPICAL GROUT PROPERTIES AT 73.5 °F (23 °C)**

<b>Consistency</b>	Plastic
<b>Flow, ASTM C939</b>	N/A
<b>Flow @ 5 Drops, ASTM C1437</b>	100 to 125%
<b>Working Time</b>	About 15 minutes
<b>Final Set Time, ASTM C191</b>	25 to 50 minutes
<b>Compressive Strength, ASTM C109 (Modified)</b>	
Age	PSI (MPa)
3 hr	3000 (20.6)
1 day	5000 (34.4)
7 days	6000 (41.3)
28 days	8000 (55.1)
<b>Height change, ASTM C1090</b> @ 1, 3, 7 & 28 days	0.0 to 0.2%
<b>Slant Shear Bond, ASTM C882</b>	
Age	PSI (MPa)
1 day	≥ 1000 (6.8)
7 days	≥ 1500 (10.3)
<b>Consistency</b>	Flowable
<b>Flow, ASTM C939</b>	N/A
<b>Flow @ 5 Drops, ASTM C1437</b>	125 to 145%
<b>Working Time</b>	About 15 minutes
<b>Final Set Time, ASTM C191</b>	30 to 55 minutes
<b>Compressive Strength, ASTM C109 (Modified)</b>	
Age	PSI (MPa)
3 hr	2500 (17.2)
1 day	4500 (31.0)
7 days	5500 (37.9)
28 days	7500 (51.7)
<b>Height change, ASTM C1090</b> @ 1, 3, 7 & 28 days	0.0 to 0.2%
<b>Slant Shear Bond, ASTM C882</b>	
Age	PSI (MPa)
1 day	≥ 1000 (6.8)
7 days	≥ 1500 (10.3)
<b>Consistency</b>	Fluid
<b>Flow, ASTM C939</b>	20 to 30 seconds
<b>Flow @ 5 Drops, ASTM C1437</b>	N/A
<b>Working Time</b>	About 20 minutes
<b>Final Set Time, ASTM C191</b>	30 to 55 minutes
<b>Compressive Strength, ASTM C109 (Modified)</b>	
Age	PSI (MPa)
3 hr	2000 (13.7)
1 day	4000 (27.5)
7 days	5000 (34.4)
28 days	6500 (44.8)
<b>Height change, ASTM C1090</b> @ 1, 3, 7 & 28 days	0.0 to 0.2%
<b>Slant Shear Bond, ASTM C882</b>	
Age	PSI (MPa)
1 day	≥ 1000 (6.8)
7 days	≥ 1500 (10.3)

**TABLE 3 TYPICAL REPAIR MORTAR PROPERTIES**

<b>Consistency</b>	Stiff gel-like
<b>Flow @ 25 Drops, ASTM C1437</b>	100 to 120%
<b>Working Time</b>	About 15 minutes
<b>Final Setting Time, ASTM C191</b>	20 to 45 minutes
<b>Compressive Strength, ASTM C109 (Modified)</b>	
Age	PSI (MPa)
3 hr	3500 (24.1)
1 day	5500 (37.9)
7 days	6500 (44.8)
28 days	8500 (58.6)
<b>Length Change, ASTM C157</b>	
Age, Condition	
28 days, air	≥ -0.05%
28 days, water	≤ 0.05%
<b>Slant Shear Bond Strength, ASTM C882</b>	
Age	PSI (MPa)
1 day	≥ 1000 (6.8)
7 days	≥ 1500 (10.3)
<b>Scaling Resistance after 25 Cycles, ASTM C672</b>	
Scaled Material	≤ 1 lb/ft <sup>2</sup> (5 kg/m <sup>2</sup> )

**WARRANTY**

**NOTICE:** Obtain the applicable **LIMITED WARRANTY** at [www.quikrete.com/product-warranty](http://www.quikrete.com/product-warranty) or send a written request to The Quikrete Companies, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA. Manufactured by or under the authority of The Quikrete Companies, LLC. © 2020 Quikrete International, Inc