GUIDE SPECIFICATION FOR 588-10K: NON-SHRINK, NON-FERROUS, MINERAL-AGGREGATE BASED PRECISION GROUT

SECTION 03 62 13

NON-METALLIC, NON-SHRINK GROUTING

Specifier Notes: This guide specification is written according to the Construction Specifications Institute (CSI) format. The section must be carefully reviewed and edited by the architect or engineer to meet the requirements of the project. Coordinate this section with other specification sections and the drawings.

Specifier Notes: W. R. MEADOWS® 588-10K is a hydraulic-cement-based, precision, non-shrink, load bearing grout designed to transfer load effectively and safely, ensuring long service time of the grouted item. It is a non-corrosive, non-metallic, mineral-based precision grout, developed to have high initial and ultimate flexural and compressive strengths. It can be mixed quickly, as needed, on the jobsite. 588-10K offers exceptional workability and is easily placed by pouring or pumping. The product is designed to give non-shrink performance under various conditions for both interior and exterior applications.

588-10K is designed for precision grouting of machinery and equipment base plates, windmill turbines, generators, rolling mills, compressors, or similar types of machinery. 588-10K is also designed for grouting soleplates, bridge seats, precast columns and beams, steel column pads, precast beams, and segmental bridge construction. 588-10K can also be used for anchoring of guardrails, signposts, bridge seats, anchor bolts, guide wires, and dowels.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation

B. Application of high precision, non-metallic, non-shrink, cementitious grout.

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

A. Section 03 30 00 – Cast-In-Place Concrete.

B. Section 03 41 00 – Precast Structural Concrete.

C. Section 05 12 00 – Structural Metal Framing.

1.03 REFERENCES

A. ACI 351.1R: Grouting Between Foundations and Bases for Support of Equipment and Machinery.

B. ASTM C109: Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.

C. ASTM C191: Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle.

D. ASTM C230: Standard Specification for Flow Table for Use in Tests of Hydraulic Cement.

E. ASTM C827: Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.

F. ASTM C1107: Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

1.04 SUBMITTALS

A. Comply with Section 01 33 00 - Submittal Procedures.

B. Submit manufacturer's product data and application instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a clean, dry area in accordance with manufacturer's instructions.

C. Protect materials during handling and application to prevent damage or contamination.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Ensure that substrate ambient air and surface temperatures are 40° F (5° C) within 24 hours of placement.

B. Do not apply if rain is imminent.

C. Protect from conditions that may cause early water loss: high winds, low humidity, high temperature, direct sunlight.

D. Grout will set faster at higher temperatures and slower at lower temperatures.

E. Follow manufacturer’s recommendations regarding additional installation information (Standard on Hot Weather Concreting, ACI 305-R89 or Standard on Cold Weather Concreting,” ACI 306-R88).

PART 2 PRODUCTS

2.01 MANUFACTURER

A. W. R. MEADOWS, INC., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Website www.wrmeadows.com.

2.02 MATERIALS

A. Performance Based Specification: Cementitious grout shall be non-shrink, non-metallic, and non-corrosive, and shall possess the following properties for plastic consistency:
   1. Compressive Strength: 24-hour, 5,500 psi (37.9 MPa)
      3-day, 6,500 psi (44.8 MPa)
      7-day, 7,500 psi (51.7 MPa)
      28-day, 11,000 psi (75.8 MPa)
   2. Expansion: 24-hour, 0.13%
      3-day, 0.16%
      7-day, 0.17%
      28-day, 0.17%
   3. Flow, ASTM C230: 110%.
   4. Initial Set Time (Laboratory Tests): 1 hour.
   5. Final Set Time (Laboratory Tests): 3 hours.

B. Proprietary Based Specification:
1. 588-10K Precision Grout by W. R. MEADOWS, INC.

2.03 ACCESSORIES

.1 Concrete Curing Compound: 1100-CLEAR CURING COMPOUND or 2200-WHITE PIGMENTED CURING COMPOUND or VOCOMP®-20 CURING AND SEALING COMPOUND.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive grout. Notify engineer if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

B. Grouting application shall be performed in accordance with ACI 351.1R.

3.2 SURFACE PREPARATION

A. Clean grout contact surfaces of oil, grease, scale, dirt, and other foreign matter that will interfere with the bond.

B. Mechanically roughen or high pressure water-jet the existing concrete substrate.

C. Ensure surface is rough, profiled, and level.

D. Saturate all surfaces by flooding with water for a period of 12 to 24 hours.

E. Remove all excess water before placing grout.

3.03 MIXING

A. Comply with grout manufacturer's recommendations for water quantity and mixing procedures based on required consistency.

B. Mix grout in conventional mortar mixing equipment with rubber blade paddles.

C. Alternatively, mix grout in appropriate grout pump as recommended by the manufacturer.

D. Add 2/3 of the amount of water required, than add grout.

E. Mix grout partially and add the remainder of water for desired consistency.

F. Mix grout for three minutes or until a lump-free consistency is obtained.

G. Mix smaller quantities using a mortar-type mixing paddle and a slow speed drill (500 - 750 RPM) with high torque.

H. Consult manufacturer's instructions for deep grouting mixing procedures.

3.04 FORMING

A. Provide for rapid, continuous, and complete grout placement.

B. Use forms of sufficient strength, closely fitted with joints sealed to prevent leakage.

C. Coat forms with a form release.

D. Provide 1/2" (12.7 mm) minimum form clearance on all sides and 1" (25.4 mm) clearance for head.

3.05 PLACEMENT

A. Place by pouring or pumping using appropriate equipment as recommended by the grout manufacturer.

B. Contact grout manufacturer for details on pumping.

C. Ensure compaction by rodding or tapping. Do not vibrate.

D. Place grout from side or corner to prevent voids and air entrapment.

E. Alternatively, place excess grout which will be displaced by the weight of the object to be grouted to effect full bearing.

F. Allow 3” (76 mm) clearance for grout entry and minimum of 6” (152 mm) grout head.

G. On the opposite side of the entry, allow minimum 1/2” (12.7 mm) clearance between form and equipment and provide initially 1” (25.4 mm) of grout head above the bottom of the equipment base plate.

H. Reduce all grout heads to 1/8” (3 mm) after initial set.

I. Provide minimum 3/4" (19 mm) grout thickness between foundation and base plate.

3.06 CURING

A. Do not remove forms until grout is sufficiently hard to avoid sagging or damaging.

B. Cure exposed material following placement using wet burlap for 48 hours.

C. Alternatively cure exposed material using a suitable curing compound.

END OF SECTION