

SECTION 03605
MASTERFLOW® 928 GROUT
High-Precision, Non-Shrink, Natural Aggregate Grout

NOTE TO SPECIFIERS

The purpose of this suggested specification is to assist the specifier while developing a specification for the use of Master Builders *MASTERFLOW® 928 Grout*. This specification has been prepared to be part of a complete project specification. It has not been prepared to be a “stand alone” item. This document is not intended to be copied directly into project specifications.

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.02 Summary

- A. This Section specifies a high-precision, fluid, non-shrink, quartz aggregate grouting material formulated to be used for applications requiring high strength with an appearance similar to concrete and mortar.
- B. This Product is a ready-to-use grout that hardens free from bleeding, settlement, or drying shrinkage when mixed, placed, and cured at any consistency - fluid, flowable, plastic, or damp-pack.

1.03 References

ASTM C 78-84	Test Method for Flexural Strength for Concrete.
ASTM C 109-90	Test Method for Compressive Strength of Hydraulic Cement Mortars - Modified.
ASTM C 469-87a	Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression.
ASTM C 496-90	Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
ASTM C 531-85	Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical Resistant Grouts and Monolithic Surfacing - (Modified)
ASTM C 666-90	Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
ASTM C 939-87	Test Method for Flow of Grout for Preplaced Aggregate Concrete (Flow Cone Method).
ASTM C 942-86	Test Method for Compressive Strength of Grouts for Preplaced Aggregate Concrete in the Laboratory.
ASTM C 1090-88	Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic Cement Grout.
ASTM C 1107-91	Standard Specification for Packaged Hydraulic-Cement Grout (Non-shrink). (CRD-C 621-92)
ACI 351	Grouting for Support of Equipment and Machinery.
24 Hour Test	MBT Test Method for Grout Performance.

1.04 System Performance Requirements

- A. Provide precision, nonshrink natural aggregate grout that when cured produces the following properties:
1. Compressive Strength at fluid consistency (ASTM C 109-90 - Modified): 3500 psi (24 MPa) at 1 day, 7500 psi (52 MPa) at 28 days.
 2. Passes ASTM C 1107 as a grade B grout when tested at temperature minimum and maximums of 45 °F to 90 °F (8 °C to 32 °C) at a working time of 30 minutes. Grout must be tested at a fluid consistency per ASTM C 939 and remain fluid at temperature range minimum and maximums for the 30 minute working time. All materials including water must be mixed and tested at temperature minimum/maximums.
 3. Modulus of Elasticity at 28 days at fluid consistency (ASTM C 469): 3.00×10^6 psi (20.7 GPa) minimum, 3.9×10^6 (27.0 GPa) maximum.
 4. Coefficient of Thermal Expansion for fluid consistency (ASTM C 531): $7.5 \times 10^{-6}/^{\circ}\text{F}$ maximum ($13.5 \times 10^{-6}/^{\circ}\text{C}$).
 5. Flexural strength at 28 days for fluid consistency (ASTM C 78): 1300 psi (7.9 MPa).
 6. Resistance to rapid freezing - thawing (ASTM C 666, procedure A): 300 cycles - min RDF 90%.
 7. Split tensile strength at 28 days at fluid consistency (ASTM C 496): 450 psi (3.1 MPa).
 8. Pass 24 hour grout test under stated temperature, time and fluidity constraints. See MBT 24 hour Grout Form.

PART 2 - PRODUCTS

2.01 Materials

- A. High Precision, Nonshrink, Natural Aggregate Grout: "MASTERFLOW 928" Grout by Master Builders, Inc.
- B. Forms: Wood, metal, or plastic, of sufficient strength to withstand pressure from the grout.
- C. Water: Drinkable.
- D. Curing Compounds: "MB 429, MASTERKURE[®] CR, MASTERKURE[®] 200W", by Master Builders, Inc.

PART 3 - EXECUTION

3.01 Surface Preparation

- A. Mechanically remove unsound concrete to the limits indicated on the drawings.
- B. Remove at least 1/4 in. (6 mm) of existing concrete facing and continue removal as required to expose sound aggregate.
- C. Thoroughly clean the roughened surface of dirt, loose chips, and dust. Maintain substrate in a saturated condition for 24 hours prior to grouting. Surface should be saturated surface dry at time of grouting.

3.02 Metal Preparation

- A. Clean baseplates and other metal surfaces to be grouted to obtain maximum adhesion. Remove loose rust and scale by grinding or sanding.

3.03 Formwork

- A. Comply with grout manufacturer's recommendations for form construction.
Construct forms to be liquid tight.

3.04 Mixing

- A. Comply with grout manufacturer's recommendations for mixing procedures.
- B. Adjust water temperature to keep mixed grout temperature in the range of 45 °F (7 °C) and 90 °F (32 °C) minimum/maximum.
 - 1. Use cold or iced water to extend working time in hot weather or in large placements.
 - 2. Use warm water in cold conditions to achieve minimum as mixed temperatures.

3.05 Installation

- A. Place grout mixture into prepared areas from one side to the other. Avoid placing grout from opposite sides in order to prevent voids. Work material firmly into the bottom and sides to assure good bond and to eliminate voids.
- B. Ensure that foundation and baseplate are within maximum/minimum placement temperatures. Shade foundation from summer sunlight under hot conditions. Warm foundation when foundation temperature is below 45 °F (7 °C).

3.06 Curing

- A. Wet cure exposed shoulders for 48 hours followed by two coats of curing compound for best results. The minimal requirement is to wet cure until grout has reached final set, followed by two coats of curing compounds.

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