MAGNAROK GROUT

Cementitious, Non-Shrink, Non-Metallic Grout

1. Product Description

a. Basic Use: Magnarok Grout is a non-shrink, non-metallic grout designed for use under steel baseplates of all types to provide precision support and bearing capacity. It is formulated to be used from a plastic to a fluid, self-leveling consistency to assure complete filling of voids and spaces under plates, in shear keys, and around anchor bolts. Compressive strengths are significantly higher than plain concrete.

b. Features/Benefits:

- Highly fluid for easy, self-leveling placement.
- High compressive strengths for dependable bearing support.
- Non-bleeding and non-segregating for maximum uniformity.
- Good for both inside and outside applications.
- Non-corrosive ingredients protect steel plates and anchors.
- No added chloride.
- Expands as it hardens to provide total support.
- Easy to use - just mix with water.

c. Typical Applications: Pumps, motors, generators, fans, paper mills, compressors, shear keys, anchor bolts, column baseplates.

d. Limitations: Do not use Magnarok Grout as a floor topping. Keep from freezing until 3,000 psi (21 MPa) compressive strength is reached. Ambient temperatures should be at 40°F (4°C) or more for proper performance. In chemically aggressive environments, use Diamite Epoxy Grouts.

e. Composition: Magnarok Grout is a blend of graded aggregate, an expansive cementitious system, and a balanced chemical system that controls expansion when mixed with water.

f. Color/Appearance: Similar to plain concrete.

2. Packaging

Magnarok Grout is packaged in 50-lb. (22.7 Kg) bags and pails, 60 bags per pallet or 36 pails per pallet.

3. Estimating/Yield

Magnarok Grout yields 0.45 cu. ft (0.013 cu. m) of grout when mixed to a fluid consistency. Each bag will fill a 1-1/4 in. (32 mm) space under a 2 ft. x 2 ft. (0.6 m x 0.6 m) baseplate after allowing approximately 10% for waste.

4. Technical Data

a. Applicable Standards:

- ASTM C 1107, Standard Specification for Packaged, Dry, Hydraulic Cement Grout (Non-Shrink).
- ASTM C 1090, Standard Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic Cement Grout.
- CRD-C 621, Corps of Engineers Specification for Non-Shrink Grout.

b. Compressive Strength: ASTM C 109, 2 in. (50 mm) cubes at 72°F (22°C).

Age	*Fluid Consistency*	*Plastic Consistency*
1 day	*3,500 psi (24 MPa)*	*5,000 psi (34 MPa)*
3 days	*4,000 psi (28 MPa)*	*6,000 psi (41 MPa)*
7 days	*7,000 psi (48 MPa)*	*8,000 psi (55 MPa)*
28 days	*8,000 psi (55 MPa)*	*9,500 psi (66 MPa)*

c. Volume Change:

ASTM C 827		*ASTM C 1090 and CRD-C 621*	
Age	*Expansion*	*Age*	*Expansion*
1 hour	*+0.8%*	*1 day*	*+0.04%*
2 hours	*+1.0%*	*3 days*	*+0.05%*
3 hours	*+1.0%*	*7 days*	*+0.05%*
		28 days	*+0.05%*

d. Flow Rate: ASTM C 939 and CRD-C 611, Flow Cone Method; 20 seconds.

e. Setting Time: ASTM C 191.

Initial Set: 3 hours.

Final Set: 4-1/2 hours.

f. Flexural Strength: ASTM C 78, 28 days; 1200 psi (8 MPa).

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g. Specification Classifications:

- Meets CRD-C 621, type d, at a plastic, flowable, or fluid consistency.
- Meets ASTM C 1107, grade C, at a plastic, flowable, or fluid consistency.

5. Directions for Use

a. Preparation: Most foundations and pedestals will need at least a minimum of surface preparation before setting of the baseplate. New foundations often have a layer of laitance from bleeding or are contaminated from construction activities. Others are too smooth to achieve good bond. Old foundations being prepared for regrouting may be soiled or oil soaked. Chip, chisel, bushhammer, or shotblast surface down to sound concrete. Any oil soaked concrete must be removed. Blow surface clean with water and compressed air. The bonding surface must be free of any coatings, paint, sealers, or curing compounds.

b. Bonding: No separate bonding agent is needed. The foundation should be saturated with water before placing of grout.

c. Baseplate: Steel baseplates should be checked for cleanliness before installation over anchor bolts. Remove any oil, rust or dirt. Install plate over bolts and set to proper elevation on shim packs, leveling screws or anchor bolt nuts.

d. Ambient Conditions: Do not install Magnarok Grout at temperatures below 40°F (4°C). Make sure foundation and baseplate are at these temperatures or higher. Store dry grout and use mixing water at temperatures to get mixed grout temperatures around 70°F (21°C). In extremely hot weather, store grout in a cool environment and mix with cold water.

e. Forming: Form around baseplate to give a watertight containment. Leave at least a 1/2 in. (12.7 mm) gap between the form and the baseplate to allow for air relief. On one side, a head box should be constructed with the outside form at a 45 degree angle to facilitate pouring of the grout and to develop head pressure for gravity grouting.

f. Mixing: Small jobs can be mixed a bag at a time using a mechanical drill and Metco Jiffy mixing blade with a 5-gal. (18.9-liter) pail. Larger placements should utilize a mortar mixer and 3 to 5 bags per batch. Add the water first and follow with the dry powder. Mixing water ranges and resulting consistencies are as follows:

Water Per Bag	*Consistency*
0.85 to 0.95 gal.(3.2 to 3.6 liter)	*Plastic (Trowelable)*
1.00 to 1.10 gal.(3.8 to 4.2 liter)	*Flowable (Pourable)*
1.15 to 1.25 gal.(4.4 to 4.7 liter)	*Fluid (Self-Leveling)*

Mix for 2 to 3 minutes to a smooth, uniform consistency. Do not add fluidifiers or other admixtures. (Note: For deep grout pads or filler applications, up to 25 lbs. (11.3 Kg) of 3/8 in. (10 mm) pea gravel may be added per bag).

g. Placing: Pour grout into head box and keep a continuous supply of grout coming into the head box. The flow of the grout under the plate will push all air ahead of the grout to provide a void-free grout pad surface. Continue pouring until form is full. Do not exceed 6 in. (152 mm) in grout pad thickness without the addition of pea gravel. (Note: On anchor bolt holes, make sure holes are clean, pre-wet, and textured. Provide a 1/2 in. (12.7 mm) annular clearance around bolts. Pour grout into holes around bolt.) In situations where packing is the best method to place material, mix Magnarok Grout to a stiff consistency. For best results, use MagnaPak Grout which is specially formulated for dry pack applications.

h. Finishing/Curing: Maintaining of water in Magnarok Grout is important early after placement. Cover all exposed grout with wet burlap or wet rags. After the grout has stiffened and will not sag, remove forms and cut back grout to desired look. This could be at an angle from the bottom of the baseplate, flush with the edge of the plate, or the shoulders can be left in tact. Float or brush exposed shoulders to desired texture. Cure with two coats of Seal N Kure or Metcure.

i. Maintenance: No standard maintenance is needed. Magnarok Grout may be sealed or coated with standard concrete products.

6. Availability

Magnarok Grout is normally available immediately from your local distributor or it will be shipped within 5 working days upon receipt of order. Please contact your local Metalcrete representative or call Metalcrete directly for more information.

7. Warranty

Magnarok Grout is manufactured in strict accordance with the quality control standards of Metalcrete Industries. It is guaranteed to perform as indicated on this data sheet when applied by competent applicators.

8. Technical Service

Metalcrete technical service representatives are available to provide on-site assistance with a minimum three day notice.

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