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Metallic
Non-Shrink Grouting

MasterFlow[®] 885

High-precision, non-shrink metallic aggregate grout with extended working time

FORMERLY EMBECO[®] 885

PACKAGING

55 lb (25 kg) polyethylene-lined bags
3,300 lb (1,500 kg) bulk bags

YIELD

One 55 lb (25 kg) bag of MasterFlow 885 grout mixed with approximately 10 lbs (4.5 kg) or 1.2 gallons (4.5 L) of water yields approximately 0.43 ft³ (0.012 m³) of grout.

Note: The water requirement may vary due to mixing efficiency, temperature, and other variables.

STORAGE

Store in unopened containers in cool, clean, dry conditions

SHELF LIFE

55 LB BAG: 1 year when properly stored
3,300 LB BULK BAG: 3 months when properly stored

VOC CONTENT

0 g/L less water and exempt solvents

DESCRIPTION

MasterFlow 885 is a cement-based metallic aggregate grout with extended working time. It is ideally suited for grouting machines or plates requiring optimum toughness and precision load-bearing support, including machine bases subject to thermal movement.

PRODUCT HIGHLIGHTS

- High strength and impact resistance
- High fluidity for ease of placement; self-consolidating
- Extended 30 minute working time ensures proper placement under a variety of conditions
- Pumpable
- High tolerance for wetting and drying cycles
- Non-shrink
- Hardens free of bleeding, segregation, or settlement shrinkage to provide maximum effective bearing area for optimum load transfer
- High tolerance to thermal movement, effects of heating and cooling making MasterFlow 885 ideal for harsh manufacturing environments
- High quality well-graded blend of metallic and quartz aggregate provides high strength, impact resistance; handles dynamic and repetitive loads
- Sulfate resistant for use in marine, wastewater, and sulfate-containing soil environments
- MasterFlow 885 grout meets the requirements of ASTM C 1107 and the U.S. Army Corp of Engineers CRD C 621, Grades B and C.
- Freeze/thaw resistant making it suitable for exterior applications

APPLICATIONS

- Compressors, turbines and generators
- Pump bases and drive motors
- Pulverizers
- Tank bases
- Conveyors
- Roller mills and crushers
- Stamping and grinding equipment
- Grouting anchor bolts, rebar and dowel rods

SUBSTRATES

- Concrete

Technical Data

Composition

MasterFlow 885 is a hydraulic cement-based metallic-aggregate grout.

Compliances

- CRD C 621, Grades B and C
- ASTM C 1107

Test Data

PROPERTY	RESULTS	TEST METHOD
Compressive strengths, psi (MPa)		
		ASTM C 942, according to ASTM C 1107
	Plastic¹	Consistency
		Flowable² Fluid³
1 day	5,000 (34)	5,000 (34) 4,000 (28)
3 days	7,000 (48)	6,000 (41) 5,000 (34)
7 days	9,000 (62)	8,000 (55) 7,000 (48)
28 days	11,000 (76)	10,000 (69) 9,000 (62)
Volume change		
	% Change	% Requirement of ASTM C 1107
1 day	> 0	0.0 – 0.30
3 days	0.05	0.0 – 0.30
14 days	0.07	0.0 – 0.30
28 days	0.08	0.0 – 0.30
Setting time, hr:min		
	Plastic¹	Consistency
		Flowable² Fluid³
Initial set	3:30	5:00 5:30
Final set	4:30	6:00 8:00
Flexural strength,* psi (MPa)		
		ASTM C 78
3 days		880 (6.1)
7 days		1,050 (7.2)
28 days		1,150 (7.9)
Modulus of elasticity,* psi (MPa)		
		ASTM C 469, modified
3 days		3.16 x 10 ⁶ (2.18 x 10 ⁶)
7 days		3.50 x 10 ⁶ (2.41 x 10 ⁶)
28 days		3.69 x 10 ⁶ (2.54 x 10 ⁶)
Coefficient of thermal expansion,*		
		ASTM C 531
in/in/° F (cm/cm/° C)		6.5 x 10 ⁻⁶ (11.7 x 10 ⁻⁶)
Punching shear strength,* psi (MPa),		
		BASF Method
3 by 3 by 11" (76 by 76 by 279 mm) beam		
3 days		1,600 (11.0)
7 days		1,800 (12.4)
28 days		2,600 (17.9)
Splitting tensile and tensile strength,* psi (MPa)		
		ASTM C 496 (splitting tensile) ASTM C 190 (tensile)
	Splitting Tensile	Tensile
3 days	350 (2.4)	300 (2.1)
7 days	490 (3.4)	400 (2.8)
28 days	520 (3.6)	500 (3.4)

¹100–125% flow on flow table per ASTM C 230

²125–145% flow on flow table per ASTM C 230

³25 to 30 seconds through flow cone per ASTM C 939

*Test conducted at a fluid consistency

This data was developed under controlled laboratory conditions. Expect reasonable variations

Test Data (continued)

PROPERTY		RESULTS		TEST METHOD
Ultimate tensile strength and bond stress				ASTM E 488 Tests*
Diameter (in)	Depth (in)	Tensile strength (lbs)	Bond stress (psi)	
5/8	4	29,200	3,718	
3/4	5	33,200	2,815	
1	7	58,500	2,660	

* Average of 5 tests in ≥ 4,000 psi (27.6 MPa) concrete, using 125 ksi threaded rod in 2" diameter, damp, core-drilled holes.

Notes

1. Grout was mixed to a fluid consistency.
2. Recommended design stress: 1,750 psi.
3. For more detailed information regarding anchor bolt applications, contact Technical Service.
4. Tensile tests with headed fasteners were governed by concrete failure.

Jobsite Testing

If strength tests must be made at the jobsite, use 2" (51 mm) metal cube molds as specified by ASTM C 942 and the ASTM C 1107 modification of ASTM C 109. DO NOT use cylinder molds. Control testing on the basis of the desired placing consistency rather than strictly on the water content.

HOW TO APPLY

SURFACE PREPARATION

1. Steel surfaces must be free of dirt, oil, grease, or other contaminants.
2. The surface to be grouted must be clean, SSD, strong, and roughened to a CSP of 5–9 following ICRI Guideline 310.2 to permit proper bond. For freshly placed concrete, consider using MasterEmaco A 500 to achieve the required surface profile.
3. When dynamic, shear or tensile forces are anticipated, concrete surfaces should be chipped with a "chisel-point" hammer, to a roughness of (plus or minus) 3/8" (10 mm). Verify the absence of bruising following ICRI Guideline 210.3.
4. Concrete surfaces should be saturated (ponded) with clean water for 24 hours just before grouting.
5. All freestanding water must be removed from the foundation and bolt holes immediately before grouting.
6. Anchor bolt holes must be grouted and sufficiently set before the major portion of the grout is placed.
7. Shade the foundation from sunlight 24 hours before and 24 hours after grouting.

FORMING

1. Forms should be liquid tight and nonabsorbent. Seal forms with putty, sealant, caulk or polyurethane foam. Use sufficient bracing to prevent the grout from leaking or moving.
2. Moderately sized equipment should utilize a head box to enhance the grout placement.
3. Side and end forms should be a minimum 1" (25 mm) distant horizontally from the

equipment to be grouted to permit expulsion of air and any remaining saturation water as the grout is placed.

4. Leave a minimum of 2" between the bearing plate and the form to allow for ease of placement.
5. A minimum of 1" (51 mm) clearance is required where the grout will be placed.
6. Eliminate large, non-supported grout areas wherever possible.
7. Extend forms a minimum of 1" (25 mm) higher than the bottom of the equipment being grouted.
8. Expansion joints may be necessary. Consult your local BASF field representative for suggestions and recommendations.

TEMPERATURE

1. The ambient and initial temperature of the grout should be in the range of 45 to 90° F (7 to 32° C) for both mixing and placing. For precision grouting, store and mix grout to produce the desired mixed-grout temperature. If bagged material is hot, use cold water, and if bagged material is cold, use warm water to achieve a mixed-product temperature as close to 70° F (21°C) as possible.
2. If temperature extremes are anticipated or special placement procedures are planned, contact your local BASF representative for assistance.
3. When grouting at minimum temperatures, see that the foundation, plate, and grout temperatures do not fall below 40° F (7° C) until after final set. Protect the grout from freezing (32° F or 0° C) until it has attained a compressive strength of 3,000 psi (21 MPa) in accordance with ASTM C 109.

Recommended Temperature Guidelines for Precision Grouting

	MINIMUM ° F (° C)	PREFERRED ° F (° C)	MAXIMUM ° F (° C)
Foundation and plates	45 (7)	50–80 (10–27)	90 (32)
Mixing water	45 (7)	50–80 (10–27)	90 (32)
Grout at mixed and placed temp.	45 (7)	50–90 (10–32)	90 (32)

MIXING

By using the minimum amount of water to provide the desired workability, maximum strength will be achieved. Whenever possible, mix the grout with a mortar mixer or an electric drill with a paddle such as ICRI 320.5 type A, D, E, F, G or H. Put the measured amount of potable water into the mixer, add grout, then mix till a uniform consistency is attained. Do not use water in an amount or a temperature that will cause bleeding or segregation.

Note: The water requirement may vary due to mixing efficiency, temperature, and other variables.

1. Place estimated water (use potable water only) into the mixer, then slowly add the grout. For a fluid consistency, start with 9 lbs (4 kg) (1.1 gal [4.2 L]) per 55 lb bag.
2. The water demand will depend on mixing efficiency, material, and ambient-temperature conditions. Adjust the water to achieve the desired flow. Recommended flow is 25–30 seconds using the ASTM C 939 Flow-Cone Method. Use the minimum amount of water required to achieve the necessary placement consistency.

- Moderately sized batches of grout are best mixed in one or more clean mortar mixers. For large batches, use ready-mix trucks and 3,300 lb (1,500 kg) bags for maximum efficiency and economy.
- Mix grout a minimum of 5 minutes after all material and water is in the mixer. Use mechanical mixer only.
- Do not mix more grout than can be placed in approximately 30 minutes.
- Transport by wheelbarrow or buckets or pump to the equipment being grouted. Minimize the transporting distance.
- Do not retemper grout by adding water and remixing after it stiffens.
- Do not add plasticizers, accelerators, retarders, or other additives.

PLACEMENT

- Always place grout from only one side of the equipment to prevent air or water entrapment beneath the equipment. Place Masterflow 885 in a continuous pour. Discard grout that becomes unworkable. Make sure that the material fills the entire space being grouted and that it remains in contact with plate throughout the grouting process.
- Immediately after placement, trim the surfaces with a trowel and cover the exposed grout with clean wet rags (not burlap). Keep rags moist until grout surface is ready for finishing or until final set.
- The grout should offer stiff resistance to penetration with a pointed mason's trowel before the grout forms are removed or excessive grout is cut back. After removing the damp rags, immediately coat with a recommended curing compound compliant with ASTM C 309 or preferably ASTM C 1315.
- Do not vibrate grout. Use steel straps inserted under the plate to help move the grout.
- Minimum placement thickness is 1" (25 mm). Consult your BASF representative before placing lifts more than 6" (152 mm) in depth.

CURING

Cure all exposed grout with an approved membrane curing compound compliant with ASTM C 309 or preferably ASTM C 1315. Apply curing compound immediately after the wet rags are removed to minimize potential moisture loss.

APPLICATION

- Contact your local representative for a pre-job conference to plan the installation.
- Always place grout from only one side of the equipment to prevent air or water entrapment beneath the equipment. Place Masterflow 885 in a continuous pour.
- Minimum placement thickness is 1" (25 mm). Consult your BASF representative before placing lifts more than 6" (152 mm) in depth.
- The water requirement may vary with mixing efficiency, temperature and other variables
- Should not be used as a floor topping.
- Large, exposed areas of grout should be avoided.
- Structural integrity of the grout is not affected by superficial, hairline cracks occasionally observed in shoulders, near base plate edges and around anchor bolts.
- The ambient and initial material temperature of the grout should be in the range of 45 to 90° F (7 to 32° C) for both mixing and placing. Ideally, use the amount of mixing water that is necessary to achieve a 25–30 second flow specified by ASTM C 939 (CRD C 611). For placement outside of 45 to 90° F (7 to 32° C), contact your local BASF representative.
- Surfaces may discolor in certain environments; it is not an indication of product performance.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting www.master-builders-solutions.basf.us, e-mailing your request to basfbcst@basf.com or calling 1(800)433-9517. Use only as directed.

**For medical emergencies only,
call ChemTrec® 1(800)424-9300.**

WASTE DISPOSAL METHOD

This product when discarded or disposed of, is not listed as a hazardous waste in federal regulations. Dispose of in a landfill in accordance with local regulations. For additional information on personal protective equipment, first aid, and emergency procedures, refer to the product Safety Data Sheet (SDS) on the job site or contact the company at the address or phone numbers given below.

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