

3 | 03 62 13
Non-Metallic
Non-Shrink Grouting

MasterFlow® 555

Fluid, general construction, mineral aggregate non-shrink grout

PACKAGING

50 lb (22.6 kg) multi-wall paper bags

YIELD

One 50 lb (22.6 kg) bag of MasterFlow 555 mixed with 11 lbs (5 kg) or 1.3 gallons (4.9 L) of water (Fluid mix) provides approximately 0.46 ft³ (0.013 m³) of grout. Water requirements may vary with mixing efficiency and other variables.

STORAGE

Store in unopened containers in cool, clean, dry conditions

SHELF LIFE

50 LB BAG: 12 months when properly stored

VOC CONTENT

0 g/L less water and exempt solvents

DESCRIPTION

MasterFlow 555 is a Fluid, non-shrink mineral-aggregate grout. It is ideally suited for grouting machines or plates requiring optimum load bearing support.

PRODUCT HIGHLIGHTS

- Meets ASTM C 1107 requirements at a fluid consistency (20–30 second flow)
- Wide application temperature range of 50 to 85 °F (10 to 29 °C).
- Can be mixed at a wide range of consistencies
- Hardens free of bleeding when properly placed and yields a high effective bearing area for proper support and load transfer
- No accelerators, including chlorides or other similar salts, will not contribute to corrosion of reinforcing steel

APPLICATIONS

- Interior and exterior
- General construction applications
- Where ease of placement of a fluid grout is desired
- Where high one-day and later-age compressive strengths are desired
- Machinery and equipment: baseplates and soleplates
- Anchor bolts, reinforcing bars, and dowel rods
- Bedding grout for precast panels
- Backfilling, underpinning foundations, and pressure grouting of slabs needing alignment
- Repairing concrete, including grouting voids and rock pockets

SUBSTRATES

- Concrete

HOW TO APPLY

SURFACE PREPARATION

1. Substrate must be structurally sound and fully cured (28 days).
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.
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) $\frac{3}{8}$ " (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.

Technical Data

Composition

MasterFlow 555 grout is a fluid, nonshrink mineral-aggregate grout.

Compliances

- ASTM C 1107

Test Data

PROPERTY	RESULTS				TEST METHOD
Compressive Strengths, psi (MPa)					ASTM C 942, according to ASTM C 1107
	Consistency				
	Plastic¹	Flowable²	Semi-Fluid³	Fluid⁴	
1 day	4,200 (29)	3,700 (26)	3,000 (21)	2,000 (14)	
3 days	5,800 (40)	4,500 (31)	4,200 (29)	4,000 (27)	
7 days	7,300 (50)	6,500 (45)	6,000 (41)	5,500 (39)	
28 days	8,500 (59)	7,500 (52)	7,000 (48)	6,250 (43)	
Volume Change					ASTM C 1090
	% Change of MasterFlow 555	% Requirement of ASTM C 1107			
1 day	> 0	0.0–0.30			
3 days	0.04	0.0–0.30			
7 days	0.06	0.0–0.30			
28 days	0.07	0.0–0.30			
Setting time, fluid consistency⁴					ASTM C 191
Final set (hr:min)	6:00				

¹100–125% flow on flow table according to ASTM C 230.

²125–145% flow on flow table according to ASTM C 230.

³30–40 seconds through flow cone according to ASTM C 939.

⁴20–30 seconds through flow cone according to ASTM C 939.

The above data was developed under controlled laboratory conditions. Properties in the field may vary. Expect reasonable variations from these results, depending on jobsite or test conditions.

Jobsite Testing

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

FORMING

- Forms should be liquid tight and nonabsorbent. Seal forms with putty, sealant, caulk or polyurethane foam.
- Moderately sized equipment should utilize a head form sloped at 45 degrees to enhance the grout placement. A moveable head box may provide additional head at minimum cost.
- Side and end forms should be a minimum 1" (25 mm) distant horizontally from the object grouted to permit expulsion of air and any remaining saturation water as the grout is placed.
- Leave a minimum of 2" between the bearing plate and the form to allow for ease of placement.
- Use sufficient bracing to prevent the grout from leaking or moving.
- Eliminate large, non-supported grout areas wherever possible.
- Extend forms a minimum of 1" (25 mm) higher than the bottom of the equipment being grouted.
- Expansion joints may be necessary for both indoor and outdoor installation. Consult your local Master Builders Solutions field representative for suggestions and recommendations.

TEMPERATURE

- For nonshrink grouting, store and mix grout to produce the desired mixed-grout temperature based upon ambient temperatures and jobsite conditions.

Recommended Temperature Guidelines for Nonshrink Grouting

	MINIMUM °F (°C)	MAXIMUM °F (°C)
Foundation and plates	50 (10)	85 (29)
Mixing water	50 (10)	85 (29)
Grout at mixed and placed temperature	50 (10)	85 (29)

- If temperature extremes are anticipated or if special placement procedures are planned, contact your local Master Builders Solutions representative for assistance.
- When grouting at minimum temperatures, be certain that foundation, plate, and grout temperatures do not fall below 50 °F (10 °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 (20.7 MPa) in accordance with ASTM C 942 or ASTM C 1107.

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.

- Precondition material to 70 °F ±5° (21 °C ±3°) before mixing.
- MasterFlow 555 grout should be mixed with a mechanical mixer for at least 3 minutes. For a fluid consistency, start with 11 lb (5 kg) or 1.3 gallons (4.9 L) per 50 lb (22.6 kg) bag. (Use potable water only.) Adjust mixing water, as needed, to establish a fluid consistency (20–30 seconds) through a flow cone according to ASTM C 939 / CRD C 611). For a semi-fluid consistency, start with 8.3 lb (3.8 kg) or 1.0 gallon (3.8 L) per 50 lb (22.6 kg) bag. (Use potable water only.) Adjust mixing water, as needed, to establish a semi-fluid consistency (30–40 seconds) through a flow cone according to ASTM C 939/CRD C 611). Less mixing water will be required to achieve stiffer consistencies. Slowly add the dry grout to mixing water.
- The water demand will depend on mixing efficiency and material and ambient temperatures. Use the minimum amount of water required to achieve the necessary placement consistency. Recommended flow is 20–30 seconds or greater using the ASTM C 939 Flow-Cone Method. Before placing grout at ambient temperatures below 50 °F (10 °C) and above 85 °F (29 °C), consult your Master Builders Solutions representative.
- Moderate size batches of grout are best mixed in one or more clean mortar mixers.
- Mix grout a minimum of 3 minutes after all material and water are in mixer. Use mechanical mixer only. Do not retemper grout by adding water.
- Do not mix more grout than can be placed in approximately 20 minutes or less, depending on ambient temperatures.

APPLICATION

- Place MasterFlow 555 in a continuous pour. Discard grout that becomes unworkable. Place grout from one side to avoid entrapment of air. Make sure that the grout fills the entire space being grouted and remains in contact with the plate throughout the grouting process. Straps may be used to move the grout to ensure the entire space is filled. DO NOT VIBRATE.
- Immediately after placement, trim the surfaces with a trowel and cover the exposed grout with clean wet rags (not burlap). Maintain moisture for 5–6 hours.
- 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.
- To further minimize the potential moisture loss within the grout, cure all exposed grout with an approved membrane curing compound (compliant with ASTM C 309 or preferably ASTM C 1315) immediately after the wet rags are removed.
- For placements greater than 6" (152 mm) in depth, product should be extended with aggregate. Aggregate extension is dependent upon the grout type, placement, application requirements, and is typically required for placement depths beyond the limitation of the neat material. The aggregate should be washed, graded, saturated, surface-dry (SSD), high-density, free from deleterious materials, and comply with the requirements of ASTM C 33. Consult Master Builders Solutions Technical Service for additional guidance.

FOR BEST PERFORMANCE

- Contact your local representative for a pre-job conference to plan the installation.
- Beveling of grout shoulders will reduce cracking.
- MasterFlow 555 should be placed at a fluid to flowable consistency at a 50 to 85 °F (10 to 29 °C) application temperature range. Use cold and hot weather concreting practices (ACI 305 and ACI 306) when grouting within 10 °F (6 °C) of these minimum and maximum temperature ranges.
- Minimum placement depth is 1" (25 mm).
- Do not add plasticizers, accelerators, retarders, or other additives
- Where precision alignment and severe service, such as heavy loading, rolling, or impact resistance are required, use metallic-reinforced, non-catalyzed MasterFlow 885 grout. If the amount of impact resistance needed is not great enough to require metallic reinforcement, use natural-aggregate, MasterFlow 928.
- Use MasterFlow 816, MasterFlow 1205, or MasterFlow 1206 post-tensioning cable grouts when the grout will be in contact with steel stressed over 80,000 psi (550 MPa).
- Make certain the most current versions of product data sheet and SDS are being used; visit www.master-builders-solutions.com/en-us to verify the most current versions.
- Proper application is the responsibility of the user. Field visits by Master Builders Solutions personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

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.com/en-us, e-mailing your request to mbsbcst@mbcc-group.com or calling 1(800)433-9517. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

LIMITED WARRANTY NOTICE

Master Builders Solutions Construction Systems US, LLC ("Master Builders") warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. MASTER BUILDERS MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. MASTER BUILDERS WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on Master Builders' present knowledge and experience. However, Master Builders assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. Master Builders reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.

FOR PROFESSIONAL USE ONLY. NOT FOR SALE TO OR USE BY THE GENERAL PUBLIC.