

MasterFlow[®] 1205

High-performance duct grout for highly stressed steel

DESCRIPTION

MasterFlow 1205 is a cement-based pumpable grout with specially graded aggregate. It produces a pumpable, nonbleeding, high-strength fluid product with an extended working time. The specially graded spherical aggregate mitigates chloride migration while still allowing the product to be easily pumped over long distances through small openings.

MasterFlow 1205 meets all the compressive strength and volume change requirements as per ASTM C 1107 (CRD C621) at a fluid consistency.

TYPICAL APPLICATIONS

- Pumping around post-tensioned tendons, cables, and high-strength rods to encapsulate and protect highly stressed steel from corrosion
- Placing around end sections of unanchored cables and rods for subsequent tensioning
- Filling voids in restricted spaces between wall panels, beams, and columns where grout will contact highly stressed steel
- Grouting cable anchor-plates or other plates where grout will contact highly stressed anchorages

ADVANTAGES

- High compressive strengths
- Hardens without bleeding, settlement, segregation, shrinkage or formation of voids
- Prepackaged quality for bag-to-bag uniformity
- Compatible with high-strength steel
- The stable rheology, shrinkage compensation and low water content ensure excellent corrosion protection of steel tendons
- Easy to pump or pour for ease of placement
- Can be pumped or re-circulated for relatively long periods of time

PACKAGING

MasterFlow 1205 is packed in 25 kg bags.

STANDARDS

- PTI spec Section 4.4.6.2 table 4.1 Type B
- PTI spec Section 4.4.6.1. Wick induced bleed Test ASTM C 940
- ASTM C 1107 (CRD C621)

TYPICAL PROPERTIES*

| Properties | Test Method | Results |
|--|--|------------------------------|
| Wet Density , kg/L | ASTM C 138 | 2.000 |
| Flow , sec - Immediately after mixing - 30 min after mixing with 30 sec remix | ASTM C 939 | 11-30 11-30 |
| Final set , h | ASTM C 953 | < 10 |
| Prehardened expansion height , % change at 3 h | ASTM C 940 | < 0.2 |
| Compressive strength , MPa 1 day 3 days 7 days 28 days | ASTM C 942 21 Mpa as per PTI M 55.1-12 35 Mpa as per PTI M 55.1-12 | > 10 > 25 > 35 > 55 |
| Chloride permeability , C at 28 days moist cure | ASTM C 1202 Modified PTI, 30 V | < 2,500 |
| Schupack-Gelman Pressure Bleed 10 min at 30 psi | Per PTI spec Section 4.4.6.2 table 4.1 Type B | < 2 |
| Wick induced bleeding , % at 3 h | Per PTI spec Section 4.4.6.1. Wick induced bleed Test ASTM C 940 | 0 |

Test Data Based on 7.4 L of water per 25 kg bag.

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APPLICATION GUIDELINES

Mixing:

Hot Conditions

Use chilled water and store the bags in a cool place to keep the mixed grout temperature below 25°C where possible, however, the maximum grout temperature should not exceed 32°C.

Cold Conditions

Use warm water and store the bags in a warm place to ensure the mixed grout temperature is above 5°C at all times.

Small Applications

MasterFlow 1205 may be mixed using a drill and paddle, however trials to assess the efficiency of such mixing equipment should be conducted.

Mixing procedure may vary depending on the mixing equipment. A colloidal mixer is the preferred mixing equipment. As a starting point add 6.8 to 7.9 L of water per 25 kg bag to the empty high-speed mixing vessel with suitable paddle (Collomix DLX) and then add the **MasterFlow 1205** powder while mixing and continue mixing until a flow of 15 to 25 seconds is achieved (ASTM C 939). Add the remaining water whilst mixing and continue mixing for an additional 3-4 minutes.

Note: Maximum water content should not exceed 7.9 L per bag.

Large Applications

For larger quantities use a high shear colloidal type mixer (1400 rpm) with a suitable mixing paddle and slow speed agitator and pump. Add the full mixing water to the mixer and add the powder in a controlled manner to prevent lump formation. Continue mixing for approximately 3 minutes, to achieve a flow of 15 to 25 seconds (ASTM C 939) after adding all the powder. Mixing for longer may lead to a marked increase in temperature and premature setting of the product. Upon completion of mixing, the grout should be transferred to the agitator vessel, but should pass over a 2 mm sieve on route, where it should not remain for more than 30 minutes.

Mixing Watchpoints

- Do not use excess water
- Do not use hardened or lumpy grout caused by torn or water damaged bags
- Do not mix by hand
- Discard any grout that has been left in excess of 30 minutes
- Do not use water in an amount or at a temperature that will produce a flow immediately after mixing of less than 15 seconds on the flow cone (ASTM C 939) or cause mixed grout to bleed or segregate. Jobsite conditions such as the size and complexity of the grouted space, pumping-line diameters, heights, mixing and pumping methods, and temperatures are all factors that determine the actual amount of water needed.

Please contact your local Master Builders Solution Technical Representative for further information.

PLACEMENT

In most applications **MasterFlow 1205** should be pumped with a diaphragm, piston or progressive cavity type pump. The chosen pump should provide a continuous flow of grout. The pump should be fitted with a pressure limiting device capable of limiting pressure below 2 MPa, hoses and connections should be checked at such pressures prior to starting.

In certain applications it may be necessary to cool and pre-soak the duct / hole, care should be taken to blow out such fluid prior to starting grouting.

Typically, inlets for grouting shall be at the lowest point and outlets at the highest. The consistency of the grout at the outlet should be checked prior to stopping grouting operations. Refer to Master Builders Solutions Technical Representatives for specific installation advice.

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COVERAGE / YIELD

Approximately – 16 L / 25 kg.

STORAGE AND SHELF LIFE

MasterFlow 1205 has a shelf life of 6 months when stored in a cool dry environment.

Store in unopened containers in a cool, clean and dry area.

HEALTH AND SAFETY

MasterFlow 1205 is not toxic, but as with other materials containing Portland cement it has an alkaline nature and thus can be irritating to skin and eyes. Wear simple dust masks and gloves when handling. Keep out of reach of children. Wash off splashes of grout with clean water. If irritation persists, seek medical advice.

QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001 and ISO 14001.

* Properties listed are based on laboratory-controlled tests.

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NOTE

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