

MASTERFLOW™ 928 T

Ultra-high strength, high-precision, dual shrinkage compensated, free flow cementitious grout

Description

MASTERFLOW 928 T is high performance cementitious grout in powder form, which when mixed with the specified quantity of water, yields a precision grout that is non shrink, flowable with high strength characteristics. MASTERFLOW 928 T meets all of requirements of CRD-C 621 and ASTM C1107.

Uses

MASTERFLOW 928 T is formulated for use as precision grouts to grout heavy duty, precision aligned machines. Applications include grouting of :

- Generators
- Gas or steam turbines
- Presses
- Crane rails
- Anchor bolts

Advantages

- Maintains level and alignment precisely throughout machines service life.
- Minimises machine vibrations.
- Highly resistant to dynamic loads
- Excellent flow, optimum contact
- Allows early commissioning
- Good fatigue and impact resistance.
- Impermeable.

Typical properties

Aspect	: Free flow grey powder
W /P Ratio, by weight	: 0.15 (flowable)
Mix Density (Flowable)	: 2200 Kg/m ³
Volume Expansion	: > 1.5 % (Plastic stage) : > 0.05 % (Harden stage)
Compressive strength, (ASTM C 109, 70mm cube)	: 35 MPa at 1 Day : 55 MPa at 3 Days : 65 MPa at 7 Days : 75 MPa at 28 Days
Flexural Strength (ASTM C 78)	: 9 MPa at 28 Days
Modulus of elasticity	: > 32 GPa at 28 Days
Pull out bond strength	: > 17 MPa at 7 Days
Bond strength to concrete	: > 3 MPa at 28 Days
Dynamic load resistance**	
Condition of Sample	: Undamaged
Compressive Strength	: Slight increase
**specimen subjected to alternating loads of 5 and 25MPa at 300 cycles/min, and for 2,000,000 cycles; and then tested for comp. strength	

Standards Compliance:

- ASTM C1107
- CRD-C 621

Specification Clause

The dual shrinkage-compensated, cementitious grout shall be MASTERFLOW 928 T, hydraulic-cement based free-flow, high strength grout that complies with ASTM C1107. The grout shall have compressive strength minimum of 35 MPa at 1 day and 75 MPa at 28 days; flexure strength minimum of 9 MPa at 28 days. The grout must exhibit positive volumetric expansion in plastic stage as well as hardening stage. Grout must be flowable at 0.15 w/c ratio and shall have fresh wet density in excess of 2200 Kg/m³. The grout must be accredited by reputed testing institute for dynamic load resistance test of 2 million cycles with no sign of cracking or strength loss.

Directions for Use

Surface Preparation

All areas to be grouted must be clean and free of oil, grease, dirt and contaminants. Remove all loose materials. Concrete must be fully cured a minimum of 28 days.

Where required, provide air-relief openings to avoid entrapment of air.

All metal components to be in contact with MASTERFLOW 928 T must be free of rust, paint, or oils.

All concrete to come in contact with the grout must be thoroughly saturated with clean water for a minimum of 12 hours before placement of grout. Remove excess water from holes and voids just before grout placement.

Form work

Design and erect a formwork to the geometry of the space to be grouted. Ensure that the formwork is grout tight, strong and well braced to withstand the fluid pressure of the grout until it sets. The formwork should be designed such as to leave a minimum gap of 100 mm at the pouring end, 50 mm at the opposite end and the minimum possible at the sides. Incorporate a pouring hopper at the pouring side of at least 300 mm height, to provide adequate grout head. Before erecting, coat the inner surfaces of forms with a suitable release agent for easy release.

Seal all the gaps in formwork, and those between formwork and concrete surface with a suitable joint sealant or with MASTERFLOW 928 T mixed to a stiff consistency.

Mixing

Precondition MASTERFLOW 928 T to 23±3 °C before mixing.

MASTERFLOW 928 T is ready to use and requires only the addition of water. Use the minimum water required to achieve the desired placement consistency, approximately the following amounts

- Pourable (Minimum Flow): 3.25 litre/25kg bag
- Flowable: 3.75 litre/25kg bag

The water requirement may vary with mixing efficiency, temperature, and other variables. It is advisable to carry out a trial mix to assess any adjustment necessary in the water demand before commencing large scale application.

Mechanical mixing is a must. For a large batch, use a concrete mixer and for a small batch (up to two bags at a time), use a heavy-duty, slow speed (approx. 600 rpm) drill fitted with a spiral paddle.

Place approximately 80% of the water in the mixer. Keeping the mixer running, add MASTERFLOW 928 T slowly. Mix for 3 to 5 minutes until a lump-free mixture is obtained. Add the remaining water while continuing to mix for at least 5 minutes until the desired consistency is achieved.

Use 7-9 mm screen, to remove any unmixed lumps.

Placing

Placing should be without interruptions until completion.

Place the mixed grout into the pouring hopper of the formwork within 15 minutes after mixing. Place from one side only.

MASTERFLOW 928 T should be laid at a minimum thickness of 25mm and to a maximum depth of 100mm.

For grouting beyond 100 mm in depth, extend MASTERFLOW 928 T with up to 25 kg of 5-12 mm sized, washed, saturated surface-dry (SSD), graded, low absorption, high density aggregates. Please consult your local BASF representative for advice.

Unrestrained Surfaces

It is advisable to design the grout casting, maintaining minimum exposed, unrestrained areas. In case its not avoidable and are wider than 50mm, dress them with 10mm size aggregates to minimise any surface cracking, once grout attains initial set.

Curing

Cure the exposed grout shoulders as soon as the grout reaches touch hard state, for 2-3 days by water ponding and then with a uniform coat of MASTERKURE 181.

Cleaning

Clean tools and equipment with water before the grout hardens.

Coverage

Each bag of 25kg of mixing with 3.75L of water (Flowable) yields 13L i.e. approximately 77 x 25kg bags / m³.

When extended with 12.5 kg of aggregate (SG: 2.6) per bag of MASTERFLOW 928 T, the yield will be 17.5 L, and with 25kg of aggregate, the yield will be 22.5 L.

Packaging

MASTERFLOW 928 T is supplied in 25kg moisture-resistant bags.

Storage and Shelf life

Store under cover, out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment.

Shelf life is 6 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice please consult BASF's Technical Services Department.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs (which can also be tainted with vapour until product fully cured or dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use. Do not reuse containers for storage of consumable item. For further information refer to the material safety data sheet. MSDS available on demand or on BASF construction chemicals web site.

Note

All BASF Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact your local BASF representative.

Disclaimer

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control.

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