

MASTERFLOW® 830

Non shrink, natural aggregate precision grout

DESCRIPTION

Masterflow 830 is a non shrink, natural aggregate precision grout formulated to provide ample working time when mixed and placed at flowable consistency. It contains specially graded natural aggregate and provides high early and ultimate compressive strengths.

RECOMMENDED FOR

All precision, non-shrink grouting applications with clearances of 10mm or more including:

- equipment base plates, sole plates and columns
- precast concrete panels, beams and columns
- anchor bolts and bars
- patching defects in poured, in place concrete structures, such as honeycombing, using preplaced aggregate techniques

FEATURES AND BENEFITS

- **high strength - provides good early and ultimate strengths which ensure quick return to service and long term durability**
- **non shrink - hardens free of bleeding, settlement and drying shrinkage when placed at flowable consistency**
- **ample working time - remains placeable even at high ambient temperatures**
- **flowable consistency - ensures complete filling of even intricate voids often without the need for pumping and strapping**
- **dense, impermeable grout - provides a good watertight seal**
- **non staining - free of metallic aggregate**
- **similar in appearance to plain concrete**
- **no added chloride**
- **complies with codes - meets the non shrink requirements of ASTM C1090 and CRD-C 621, Corps of Engineers Specification for Non-Shrink Grout, and provides complete non-shrink performance when tested in accordance with AS2073, Section 12, Bedplate Technique**

TYPICAL PERFORMANCE DATA (TYPICAL)

Strength Development

The strength of the grout is often the determining factor in deciding when loads can be put on structural members of machinery. The strength of the grout is dependent on the amount of mixing water used, ambient temperature, curing and age of the hardened grout.

Compressive Strength

Typical compressive strengths of 50mm cubes of **Masterflow 830** placed at flowable consistency at 23°C.

Age	Strength (MPa)
1 day	25
3 days	42
7 days	55
28 days	65

Flow Retention

Determined by the flow trough method at 23°C:

Time	Flow	Retention
Initial	47cm	100%
After 30 mins.	35cm	74%
After 1 hour	24cm	51%

Note: The data shown is based on controlled laboratory tests. Reasonable variations from the results shown can be expected.

Field and laboratory tests should be conducted on the basis of the desired placing consistency rather than strictly on indicated water demands. If the project requires that strength tests be conducted on site, do not use cylinder moulds. Compressive strengths should be determined in accordance with AS2073, Part 10 using 50mm cube moulds with compression covers.

APPLICATION

Before pumping or attempting large placements discuss specific procedures with your local Degussa Construction Chemicals technical representative at least 2 weeks before grouting is scheduled to commence.

PREPARATION

Foundation

Clean out bolt holes, remove oil, grease, curing materials etc. Roughen surface with a small chipping hammer to ensure good bond.

Bedplate

Clean off rust, oil, grease. Provide air relief holes where necessary.

Saturation

Fill bolt holes and saturate cleaned foundation area with water for a minimum of 4 hours before grouting, preferably overnight. Just before grouting remove all free water particularly from grout holes and blockouts by sponging out with clean rags or blowing out with oil-free compressed air.

Vibration

Eliminate sources of vibration (which can cause settlement and bleeding) until grout hardens.

FORMS

Forms should facilitate rapid, continuous and complete filling of space to be grouted, considering configuration of baseplate foundation. Forms must be high enough to hold grout above underside of plate. Build strong, water-tight, well based forms.

On placing side, slant form at approximately 45° outward and extend this sufficiently high to provide a head of grout. Pour grout onto sloped form to direct under plate and minimise entrapment of air during placing.

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Use methods of forming that will allow grout to flow by gravity between plate and foundation, keeping grout in full contact with these surfaces until it has hardened.

TEMPERATURE PRECAUTIONS

a) Normal Temperature - this grout is formulated for use between 10°C and 30°C without special precautions.

b) High Temperature - above 30°C it is advisable to work sheltered from the heat (e.g. use shade screens or place grout early in the morning). Keep materials cool and use cold water for mixing. **DO NOT USE DRY ICE AS A COOLING AGENT.** Use regular ice or liquid nitrogen to cool mixing water (do not add ice directly into the mix only the cooled water).

c) Low Temperature - below 10°C both water demand and rate of strength development will be considerably reduced. If early strength is required use heated water and maintain placed grout temperature above 20°C for 24 hours.

Water Demand

Actual amount of water required will depend on desired consistency for the job and temperature (both ambient and grout). For any given consistency more water will be required at high temperatures, and less at low temperatures. **Masterflow 830** is designed to be placed at a consistency which will give 45-50cm lateral flow in the flow trough. As a guide, 20kg of **Masterflow 830** mixed at 20°C requires approximately 3.6 litres of water to provide the recommended lateral flow when using a tilting barrel or paddle type mixer. When using a grout stirrer, this water demand will be slightly increased.

DO NOT USE WATER IN AN AMOUNT OR AT A TEMPERATURE THAT WILL CAUSE THE MIXED GROUT TO BLEED OR SEGREGATE.

Mixing

For large quantities use a tilting barrel or paddle type mortar mixer. For smaller quantities a 20 litre pail and a grout stirrer are recommended.

When using a mortar mixer, add approximately 70% of the required mixing water. Add the grout slowly and evenly with the mixer running and mix for 3 minutes to break up any lumps. Slowly add the remaining water. Add only as much water as necessary to provide required consistency.

Too much water may adversely affect non-shrink performance and strength development. Mix until grout appears homogeneous, about 4-5 minutes.

When using a grout stirrer, add all the required water to the mixing pail. slowly and uniformly add the grout into the water over 30 seconds while mixing. Do not "dump" the grout into the mixer. This may cause lumping, which will be hard to break down. Mix for 1-2 minutes at 300-400rpm ensuring the mixing blade is kept below the surface of the grout to prevent air entrapment. Excessive missing will entrap air, reducing flow and strength.

Do not add any other dry materials (sand, cement etc).

Do not use grout from damaged bags.

Special Applications

It is possible to bulk out **Masterflow 830** with clean, dry, silt free 10mm pea gravel when sections to be grouted are in excess of 120mm. The pea gravel can be added at 40% weight/weight (8kg/20kg) bag of **Masterflow 830**. Approximate water demand for this mixture is 2.8-3.0 litres/20kg bag of grout, however it is advised that the mixture be trialled first to reach the required consistency. This mixture is not to be used for precision grouting applications.

Placing

Masterflow 830 can be placed by either manual gravity techniques or by pump. It's extended working life properties allow sufficient time for placement to be completed without problem. However, proper planning and organisation on the job site is essential. Recommended grout thickness is 25-50mm. Minimum 10mm. Where thickness exceeds 100mm special procedures may be necessary to restrict temperature rise. Consult your local Degussa Construction Chemicals technical representative. Sufficient labour and machine mixing capacity must be available to ensure continuous placement.

Manual Placement

Avoid trapping air and water under the plate by placing grout from one side only. Use a suitable head box to ensure grout flows continuously. Ensure entire space to be grouted is filled by bringing level above the underside of the machine base plate and remain at this level throughout grout placement. Gentle strapping from one side only may assist difficult placement but **DO NOT VIBRATE.** (Vibration will cause segregation in flowable grout).

Pump Placement

Masterflow 830 can be pumped with the same equipment used for cement-sand or pea gravel mixes. Consult your Degussa Construction Chemicals technical representative on specific equipment and procedures. Pump should have a hopper capable of mild agitation and be fitted with a return line to allow the grout to recirculate during temporary hold ups. A 50mm internal diameter pump hose is preferred, although smaller diameter hose can be used for short distances. Place 7-9mm screen over the pump hopper to remove lumps formed during mixing, or debris. Keep hopper full so as not to draw in air.

Place **Masterflow 830** by pumping into farthest corner and gradually withdrawing hose as the space fills. Take care to ensure air is not entrapped under the plate. When the placing quantity is large enough to consider mixing in a transit mixer consult your local Degussa Construction Chemicals office for special procedures and availability of grout in bulk bags.

CURING

For optimum performance, effective curing is strongly recommended. Protect fresh grout from direct sun and wind. Cure all exposed shoulders immediately with wet rags for 24 hours, then apply a suitable Degussa curing compound such as **Masterkure 404** or **Masterkure 250XDS**.

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ESTIMATING DATA

20kg of **Masterflow 830** mixed to flowable consistency produces approximately 11.0 litres (0.011 cubic metres) of grout.

PACKAGING

Masterflow 830 is packaged in 20kg moisture resistant bags.

SHELF LIFE

Masterflow 830 has a shelf life of approximately 18 months when stored in a cool dry environment in original unopened bags. The expiry date is printed on each bag of product.

PRECAUTIONS

Masterflow 830 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.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **Degussa Construction Chemicals** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by **Degussa Construction Chemicals** either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not **Degussa Construction Chemicals**, are responsible for carrying out procedures appropriate to a specific application.

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