



INNOVATION | SUSTAINABILITY | EXCELLENCE

NIRMAAHAN

NGPL GroutEx MP1





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Non-shrink, free flow, general purpose cementitious grout

USES

NGPL GroutEx Mp1 is used for effective support beneath load bearing units especially where static loads apply. Also, as an efficient medium for transferring all operational loads to the foundation. For free flow grouting of machine base plates, Crane and Transporter Rails, standing equipments bed plates, stanchion bases, steel rolling mill beds, pump sets etc.

ADVANTAGES

No-shrink: Will continue to occupy the filled space without shrinkage. Continues to provide support to the bearing areas and dampens vibration.

Free flow: Ensures high level of contact with load bearing area. Also helps complete filling

Without voids: No need for external aids like rodding, poking, chaining etc.

Prepacked and factory controlled: Consistency and reliability ensured. Site batching and blending variations eliminated.

Iron free: No chance of deterioration by uncontrolled rust expansion, corrosion and staining of grout.

Chloride free: Does not cause corrosion of machine parts, anchor bolts etc, in contact grout.

DESCRIPTION

NGPL GroutEx Mp1 is supplied as a ready-to-use dry powder, requiring only the addition of water to produce a free-flowing non-shrink grout. The material is blend of specially processed cement, Pregraded fillers and additives which impart:

- Good early and final strength due to very low water requirement.
- Controlled expansion to retain the original volume filled even after setting.
- Free flow characteristics without any segregation and bleeding.
- **NGPL GroutEx Mp1** on setting, will have a microcellular structure with high frost, fire and oil resistance

PROPERTIES

Compressive strength (N/mm²): (IS : 4031 Part 6)

	1days	3days	7days	28days
Flowable (W/P 0.15)	10.5	27.4	35.5	45.4

Note: Cubes cast are kept under restraint before testing, to simulate site conditions. Size of the cubes used 70.6mm x 70.6mm x 70.6mm tested at 30 °C.

Tensile strength: At 28 days tensile strength achieved is typically 3.5 N/mm².

Young's modulus: 24 KN/mm²

Expansion characteristics: controlled expansion occurs in the unset material to ensure that the grout, when cured, will continue to occupy its original volume within the confines of the voids in which it was placed.

Unrestrained expansion: 1 to 4%

Time for expansion: Expansion starts 20 minutes after mixing and will be completed 150 minutes later.



Pressure to restrain plastic expansion: Appro. 0.004N/mm²

Note : It is necessary to restrain free flow grout edges over 50mm wide. Otherwise unrestrained expansion may lead to some cracks.

Fresh wet density: At flowable consistency 2200kg/m³

W/P ratio: Recommended water powder ratio for flowable consistency is 0.16. Total quantity of water required for 25 kg bags is 3.75 litres.

Flow characteristics: The maximum distance of flow is governed by the gap width and the head of the grout. Typical data for flow design, assuming grout is poured immediately after mixing, is given in the table below:

Grout Consistency	Gap Width (mm)	Max flow distance in mm		
		50mm head	100mm head	250mm head
Flowable	30	500	1000	2000
	50	1000	2000	3000+

N.B: This table is based on the following factors. Temperature: 25 °C: water saturated substance: Minimum unrestricted flow width: 300mm.

HOW TO APPLY

PREPARATION

FOUNDATION SURFACE:

The substrate surface must be free from oil, grease or any loosely adherent material. If the concrete Surface is defective or has laitance, it must be cut back to a sound base. Bolt holes and fixing pockets Must be blown clean of any dirt or debris.

PRE-SOAKING

Several hours prior to placing, the concrete substrates should be saturated with clean water. Immediately before grouting takes place any free water should be removed with particular care being Taken to blow out all bolt holes and pockets.

BASE PLATE

It is essential that this is clean and free from oil, grease or scale. Air pressure relief holes should be Provided to allow venting of any isolated high spots.

LEVELLING SHIMS

If these are to be removed after the grout has hardened. They should be treated with a thin layer of grease.

FORMWORK

The formwork should be constructed to be leakproof. This can be achieved by using foam rubber strip or mastic sealant beneath the constructed formwork and between joints.

In some cases, it is practical to use a sacrificial semi-dry sand and cement formwork should include outlets for Pre-soaking.

UNRESTRAINED SURFACE AREA

This must be kept to a minimum. Generally, the gap width between the perimeter formwork and the plate edge should not exceed 150mm on the pouring side and 50mm on the opposite side. It is advisable, where practical, to have no gap at the flank sides.

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MIXING AND PLACING

MIXING:

For best results a mechanically powdered grout mixer should be used. When quantities up to 50kg are used, a slow Speed drill (400 – 500 rpm) fitted with a paddle is suitable. Larger quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.

To enable the grouting operation to be carried out continuously. It is essential that sufficient mixing capacity and labours are available. The use of a grout holding tank with provision to gently agitate the grout may be required.

CONSISTENCY OF GROUT MIX

The quantity of clean water required to be added to a 25kg bag to achieve the desired consistency is given below.

Pourable : 4.125 litres

Flowable : 4.5 litres

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Consistency of grout mix

The quantity of clean water required to be added to a 25kg bag to achieve the desired consistency is given below.

Flowable : 3.75 litres

The selected water content should be accurately measure into the mixer. The total content of the **NGPL GroutEx Mp1** grout bag should be slowly added and continuous mixing should take place for 5 minutes. This will ensure that the grout has a smooth even consistency.

PLACING

At 30 °C place the grout within 20 minutes of mixing to gain full benefit of the expansion process.

NGPL GroutEx Mp1 can be placed in thicknesses up to 100mm in a single pour when used as an underplate grout.

For thicker sections it is necessary to fill out **NGPL GroutEx Mp1** grout with well graded silt free aggregate to minimise heat build-up. Typically, a 10mm aggregate is suitable. 50 – 100% aggregate by weight of **NGPL GroutEx Mp1** can be added.

Any bolt pockets must be grouted prior to grouting between the substrate and the base plate.

Continuous grout flow is essential. Sufficient grout must be prepared before starting. The time taken to pour a batch must be regulated to the time to prepare the next one.

ESTIMATING

PACKAGING

NGPL GroutEx Mp1 is supplied in 25 kg bags.

YIELD

One bag of **NGPL GroutEx Mp1** will yield 12.5 litres at flowable consistency.

SHELF LIFE

6 months when stored under cold dry conditions in unopened bags.

PRECAUTIONS

HEALTH & SAFETY INSTRUCTIONS

NGPL GroutEx Mp1 is nontoxic, but alkaline in nature. Gloves should be worn while handling this product. Splashes of grout on the skin or eyes should be washed off with clean running water in the event of prolonged irritation. Seek medical advice.



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