



INNOVATION | SUSTAINABILITY | EXCELLENCE

# NIRMAAHAN

## NGPL GroutEx MP2





## NGPL GroutEx MP2

Free flow, high strength, non-shrink, cementitious precision grout

## USES

**NGPL GroutEx MP2** is used for precision grouting where it is ntial to withstand static and dynamic Loads. Main applications would be the grouting of base plat compressors, boiler Feed pumps etc. it can also be used for de range of fixings. These include masts, anc Bolts and fence posts.

## ADVANTAGES

- Gaseous expansion system compensates for shrinkage and settlement in the plastic state.
- No metallic iron content to cause staining.
- Prepacked material overcomes onsite batching variations.
- Develops high early strength without the use of chlorides.
- High ultimate strength ensure the durability of the hardened grout.
- Free flow ensures high level of contact with load bearing area.

## DESCRIPTION

**NGPL GroutEx MP2** is supplied as a ready-to-use dry powder, requiring only the addition of water to produce a free-flowing non-shrink grout for gap thicknesses up to 100mm.

**NGPL GroutEx MP2** is a blend of Portland cement, graded fillers and chemical additives which impart controlled expansion in the plastic state whilst minimising water demand. The low water demand ensures high early strength. The graded fillers are designed to assist uniform mixing and produce a consistent grout.

## PROPERTIES

### Compressive strength (N/mm2): (BS 1881 – Part 116: 1983)

Compressive strength (N/mm2)

Age (days)

Consistency

|    | Flowable (W/P .18) | Pourable (W/P .165) |
|----|--------------------|---------------------|
| 1  | 23.8               | 27.1                |
| 3  | 45.2               | 54.2                |
| 7  | 55.3               | 66.3                |
| 28 | 65.3               | 78.2                |

### Compressive strength with addition of aggregates

Age  
(days)

compressive strength (N/mm2) W/P .18  
% of aggregates (IS 516 – 1959)

|    | 50%  | 75%  | 100% |
|----|------|------|------|
| 1  | 28.2 | 30.3 | 32.2 |
| 3  | 50.1 | 52.2 | 55.3 |
| 7  | 60.2 | 63.3 | 68.2 |
| 28 | 70.4 | 75.2 | 78.3 |



## Flexural strength (BS 4551, 1998)

| Age<br>(days)                             | Flexural strength (N/mm <sup>2</sup> )<br>W/P 0.18                                                                                                                                       |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                         | 2.6                                                                                                                                                                                      |
| 3                                         | 7.1                                                                                                                                                                                      |
| 7                                         | 9.2                                                                                                                                                                                      |
| 28                                        | 10.1                                                                                                                                                                                     |
| Tensile strength<br>(W/P - 0.18)          | 3.55 N/mm <sup>2</sup> @ 28 days                                                                                                                                                         |
| Pull-out bond strength<br>(W/P - 0.18)    | 17.3 N/mm <sup>2</sup> @ 7 days<br>20.2 N/mm <sup>2</sup> @ 28 days                                                                                                                      |
| Time for expansion<br>(after mixing)      | Start : 20 minutes<br>finish : 120 minutes                                                                                                                                               |
| Fresh wet density                         | Approximately 2225 kg/m <sup>3</sup><br>Depending on actual consistency used                                                                                                             |
| Young's modulus:<br>(ASTM D469 - 94)      | 28 kN/mm <sup>3</sup>                                                                                                                                                                    |
| Dynamic load resistance<br>undamaged even | Specimens of GROUTMAX MP2 remained<br><br>After subjecting them to alternate loads of 5N/mm <sup>2</sup> & 25 N/mm <sup>2</sup> at the rate of 500 cycles/minute for two Million cycles. |

Coefficient of thermal expansion  $11 \times 10^{-6} / ^\circ\text{C}$

Unrestrained expansion 2 - 4 % in the plastic state enables to Overcome Shrinkage.

Pressure to restrain 0.004 N/mm<sup>2</sup> approx.

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<br>Consistency | Gap<br>Width<br>(mm) | Max. flow distance in mm |               |               |
|----------------------|----------------------|--------------------------|---------------|---------------|
|                      |                      | 50mm<br>head             | 100mm<br>head | 250mm<br>head |
| Flowable             | 30                   | 350                      | 1000          | 1500          |
|                      | 40                   | 500                      | 1500          | 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

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.

#### 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.

## 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



INNOVATION | SUSTAINABILITY | EXCELLENCE

The selected water content should be accurately measure into the mixer. The total content of the **NGPL GroutEx MP2**

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 MP2** 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 MP2** 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 MP2** 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 MP2** is supplied in 25 kg moisture resistant bags.

### YIELD

**NGPL GroutEx MP2** made for wastage when estimating quantities required. The approximate yield per 25 kg bag

For different consistency is:

| Consistency    | Pourable | Flowable |
|----------------|----------|----------|
| Yield (litres) | 12.5     | 13.3     |
| Storage        |          |          |

### SHELF LIFE

**NGPL GroutEx MP2** has a shelf life of 6 months if kept in a dry store in sealed bags. If stored in high temperature and high humidity location, the shelf life may be reduced.

## PRECAUTIONS

### HEALTH & SAFETY INSTRUCTIONS

**NGPL GroutEx MP2** 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.



**9909022327**



**www.nirmaahaan.com**



**contact@nirmaahaan.com**