

# Flo-Grout HFR

High flow non-shrink cementitious precision grout



## Description

Flo-Grout HFR is a cementitious, pre-mixed, pre-packed chloride and hydrogen free, high flow, pourable grout. It contains cement, selected additives, well graded and non-reactive aggregates and is designed to give excellent flow properties, shrinkage compensation, frost resistance, and high compressive strength.

## Applications

Flo-Grout HFR is ideally designed for use in the following applications:

- ▲ Machine beds.
- ▲ Bridge bearing pads and plinths.
- ▲ Pile cap re-profiling.
- ▲ Under machinery base plates, crane rails, stanchion plates etc.
- ▲ Anchoring of tie bars, bolts, and stressing cables.
- ▲ Underpinning.

## Advantages

- ▲ Non-shrink grout that has dual expansion properties to compensate for shrinkage in both the plastic and hardened stages.
- ▲ Extremely dense and low permeability.
- ▲ High early strength development allowing for rapid installation.
- ▲ High flow can be poured or pumped into variable gap widths down to 10 mm.
- ▲ Easy to apply, single component which require only addition of water.
- ▲ Hydrogen and chloride free.

## Standards

Flo-Grout HFR complies with U.S. Corps of Engineers Specifications CRD-C621-82A and ASTM C1107, Grade C.

## Method of Use

### Substrate Preparation

The Substrate should be sound, clean and free from contamination. Surface Laitance should be removed by acid etching.

All surfaces should be pre-soaked with clean water for minimum of 4 hours prior to grouting.

## Technical Properties:

Compressive strength: ASTM C109/109M-11	> 24 MPa @ 1 day > 62 MPa @ 3 days > 67 MPa @ 7 days > 77 MPa @ 28 days
Flexural strength: ASTM C348	≥ 2 MPa @ 1 day ≥ 7.5 MPa @ 7 days ≥ 9.5 MPa @ 28 days
Colour:	Grey
Expansion characteristics: ASTM C827/C827M-10	≤ 2%
Bleeding: ASTM C940	Nil
Height change at hardened stage: ASTM C1090	Up to 0.3%
Initial setting time: ASTM C191	7 hr @ 25°C
Final setting time: ASTM C191	12 hr @ 25°C
Fresh wet density:	2.25 ± 0.05 g/cm <sup>3</sup>
Flow characteristics (efflux time): ASTM C939	25 – 35 sec

*Note: Typical properties @ 4.45 litre/25 kg @ 25°C.  
Compressive strength @ 1 day is under restraint.*

## Mixing

To ensure proper mixing, a mechanically powered mixer or drill fitted with suitable paddle should be used. Depending on the consistency required, the addition of 3.5 litre (Trowellable) 4.25 litre (Flowable) or 4.45 litre (Fluid) of clean water should be added to a clean container.

The 25 kg powder is then added slowly to the water while mixing continuously with a low speed mixer/drill (400 - 600 rpm). Mixing should be continued for 3 minutes until a uniform consistency is obtained.

# Flo-Grout HFR

## Placing and Finishing

### *Under Base plate:*

Enough material should be available to achieve a continuous fill and to complete the work.

Pouring of the mixed grout should be started from one side only to avoid air entrapment. To obtain maximum flow distance, a side shutter feed between 100 mm to 250 mm high should be erected and used to build the required head.

### *Formwork:*

As the mixed grout possesses high fluidity characteristics, all formwork and shutters should be water tight. This can be obtained by sealing underneath the formwork and at the joints by using an appropriate mastic.

The unrestrained areas should be kept to a minimum due to the expansive nature of Flo-Grout HFR.

## Curing

Since Flo-Grout HFR is a cementitious material, it should be treated in a manner similar to concrete. Curing can be conducted by either using concrete curing compound such as Setseal 22 or by using wet hessian and polyethylene.

### *Notes:*

- ▲ At low temperatures (below 8°C), warm water is recommended to achieve the early strength. And the formwork is recommended to be kept longer time.
- ▲ At high temperatures (35°C and above), cold water (less than 20°C) must be used for mixing.

## Cleaning

All tools should be cleaned immediately after finishing with water. Hardened materials can be cleaned mechanically.

## Packaging

Flo-Grout HFR is available in 25 kg bags.

## Thicknesses and Size Limitations

Flo-Grout HFR can be applied in a single layer at thicknesses between 10 - 100 mm. For greater thicknesses, an 8 - 12 mm washed aggregate should be added at a ratio of 15 kg of washed aggregate to 25 kg of Flo-Grout HFR.

## Yield

Approximately 12.5 – 13.5 litre per 25 kg bag depending on consistency.

## Storage

Flo-Grout HFR has a shelf life of 12 months from date of manufacture if stored at temperatures between 2°C and 50°C.

If these conditions are exceeded, DCP Technical Department should be contacted for advice.

## Cautions

### Health and Safety

As Flo-Grout HFR contains Portland cement and sand, Flo-Grout HFR may cause irritation to skin or eyes. In case of accidental contact with eyes, immediately flush with plenty of water for at least 10 minutes and seek medical advice if necessary.

For further information refer to the Material Safety Data Sheet.

## Fire

Flo-Grout HFR is nonflammable.

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- ▲ Concrete repair.
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- ▲ Waterproofing.
- ▲ Adhesives.
- ▲ Tile adhesives and grouts.
- ▲ Building products.
- ▲ Structural strengthening.

### **Note:**

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