



# BOSTIK

## FLOWFILL HS

**STRUCTURAL GRADE, HIGH EARLY & ULTIMATE STRENGTH,  
SHRINKAGE-COMPENSATED CEMENTITIOUS GROUT**

TECHNICAL SHEET 11/22/2022

### DESCRIPTION

FLOWFILL HS is a structural grade, non-shrink, non-metallic, self leveling, highly troweable pourable cementitious grout complying with the ASTM C 1107. FLOWFILL HS is based on Portland cement, graded aggregates and chemical additives that has high early & ultimate strength. The fluid expansion system compensates for shrinkage and settlement in the plastic state.

### FEATURES AND BENEFITS

- Fluid expansion system compensates for shrinkage while in the plastic state.
- Easily mixed for grouting at a desired consistency and application plastic or pourable.
- Easy to use, requires only the addition of water.
- Contains no iron particles, and will not corrode rust or cause staining with the material it contacts even under consistently moist conditions
- Lower water cement ratio, higher density, produces high compressive strength, reduces drying shrinkage and increased permeability.
- Complete void filling resulting from fluid expansion in plastic state.

### RECOMMENDED USES

- Pre-cast and pre-stressed wall panels, beams, and columns.
- Grouting in-column based base in-filling
- Filling core holes, gaps, cavities, and recesses
- Machine foundation and concrete anchors
- Bridge bearing and rail beds
- Rectification of structural elements due to honeycomb

### SURFACE PREPARATION

Surface must be clean, sound and free from dirt, grease or other bond-inhibiting contaminants. The concrete should be relatively flat repair deep pockets or grooves that may hold saturation water or may hinder the flow of the grout. Ensure concrete has fully cured and has sufficient strength and stillness before application of the grout. Bolts and anchor holes must be thoroughly clean and free from dust or loose material.



### MIXING

FLOWFILL HS is supplied in a ready to use form requiring only the addition of clean water. For best results, FLOWFILL HS must be mixed with a mechanical forced action mixer with a high-shear stirrer to obtain a uniform, lump-free consistency. Allow the mixture to stand to remove entrapped air before pouring. It is essential that the grouting operation is continuous hence ensure sufficient labor and mixing is available.

The selected water content should be accurately measured and poured into the mixing vessel. Pour approximately 90% of the mix water into the mixing container, then slowly charge the mixer with Flowfill HS. Slowly add the remaining mix water as required to obtain the desired consistency. Mix for approximately 3-5 minutes or until a homogeneous consistency is obtained.

Discard any unused grout that has stiffened or hardened.

### PACKAGING

FLOWFILL HS is supplied in a 25 kg polylined bag.

### STORAGE

FLOWFILL HS has a shelf life of approximately 12 months if kept in a dry environment away from moisture. Store in a cool place away from direct sunlight. Keep containers tightly closed after use.

## SATURATED SURFACE DRY

The concrete must be saturated with water before grouting to avoid shrinkage due to rapid absorption of water by the concrete from the grout. It is recommended to maintain the SSD substrate with water for prior to grouting. Excess water should be removed before pouring the grout and water in the anchor and bolt-holes must be blown out and ensure that no traces of free water is present while grouting.

## BASEPLATE

All traces of rust, oil, or grease must be removed. It is important to provide air pressure relief holes for venting.

## FORMWORK

It is important that the formwork be constructed to facilitate rapid continuous and complete filling at area to be grouted. It is essential that the formwork constructed be leak-proofed and watertight. Foam rubber strips of suitable sealants underneath the formwork are recommended. Formwork should allow gravity flow of grout between the base plate and foundation, ensuring grout is kept in full contact with base plate and concrete substrate.

## UNRESTRAINED BUSTRATE

As FLOWFILL HS is expanding grout unrestrained areas must be kept to minimum. It is advisable not to have any unrestrained areas.

## BELOW TEMPERATURE WORKING

Normal precautions for winter working with cementitious material should be adopted. At temperature below 5°C the cure rate and strength development will be reduced. If early strength is required it is advisable to use heated water/warm water and condition FLOWFILL HS to 25°C. Do not exceed this temperature.

## HIGH TEMPERATURE WORKING

At temperatures above 30°C, it is advisable to use water below 20°C when mixing the grout. All materials must be kept cool, away from direct sunlight with installation area be shaded by erecting shade screeds. If ambient temperatures are excessive, perform grouting in early morning or late evenings.

## CURING

Grouts require enough moisture for curing. Curing is not required in areas intermittently or totally submerged to water.

However for exposed surfaces, applied grouts must be protected from excessive moisture loss by keeping areas wet for a given time or with the use of appropriate curing compound. Exposed area can be protected by continued sprinkling of water or by covering with wet hessian, or plastic sheeting. For areas that cannot be continually moist, Bostik Emulsion 57 is recommended to prevent

excessive moisture loss. Remove formwork no sooner than 24 hours after completion of grouting. The surface should be kept moist or protected with curing agent for at least 7 days until the grout has sufficiently cured. Lack of sufficient curing could result in plastic cracking and drying shrinkage on surface.

## PLACING

It is essential that at ambient temperature (approximately 20°C) the grout is placed within 25 minutes of mixing and this will ensure the expansion process will be maximized. FLOWFILL HS can be placed in thickness ranging from 10mm to 100mm in one single application. Where the thickness is greater than 100mm, special procedures may be necessary. Consult your local Bostik Technical/R&D Department for advice.

Avoid trapping air and water by placing grout from one side only. It is recommended that a suitable head box be used to ensure continuous flow of grout. Ensure entire area to be grouted is filled by bringing level to above underside of machine base plate and remain at this level throughout the grout placement. The grout head must be maintained at all times, so that continuous grout front is achieved. Do not use mechanical vibrators to assist in flow as this will cause segregation of aggregate. For large areas it is recommended that FLOWFILL GP be pumped. Contact your local Bostik Office for more information.

## PRE-CAUTION

- Do not add additional water. Unused grout that hardened should be discarded.
- Do not mix by hand. Mixing by hand does not provide sufficient strength for proper dispersion and for breaking up lumps to achieve a homogenous mixture.
- For large areas, apply grout in a continuous operation.
- Do not apply in less than 10mm in dept, not greater than 100mm.
- Unrestrained areas must be kept to a minimum.
- Cure time and set will be extended when applied at temperatures lower than 5°C

**Fire Hazards:** Non-combustible, however, if involved in a fire use water fog, foam or dry agents. Avoid breathing of products of combustion.

**For Spills:** Clear area of all unprotected personnel. Slippery when wet. Wear protective equipment. Collect and seal in properly labeled drums.

## TYPICAL PROPERTIES

### MIXING CONSISTENCY

The table is guide to the typical water addition requirements for various consistencies. Liter of water per 25kg bag.

	FLOWABLE
Range	3.0-3.25

**COMPREHENSIVE STRENGTH**  
Tested in accordance to ASTM C 109

AGE	FLOWABLE
1 day	30MPa
3 days	45 MPa
7 days	60 MPa
28 days	69 MPa

**SETTING TIME**

	FLOWABLE
Initial Set	4-5 hours
Final Set	6- 7 hours
Bleeding	0%

**COVERAGE**

The approximate yields are obtained if mixed in accordance with recommended procedures and accurately measured water content based on ASTM C 1107.

	FLOWABLE
Liters per 25 kg bag	~11 Liters
Fresh wet density ( kg/m <sup>3</sup> )	2690 Kg/m <sup>3</sup>
Bags required per cubic meter (m)	91 Bags

**DISCLAIMER:**

The information in this Technical Data Sheet is intended for the assistance of users and is of a general nature. It reflects the extent of our knowledge and experience of our products and is based on tests which we believe to be reliable. However, no guarantee of accuracy can be given due to the wide range of surfaces, environmental and field conditions and variations encountered in raw materials, manufacturing equipment and methods at the place where the work is performed. Some of these will be beyond our knowledge and control. Users are asked to make sure that the TDS in their possession is the latest issue. Likewise, we recommend users carry out their own tests to determine the suitability of the product for their particular purposes.

Any claim for a defective product must be filed within 30 days of discovery of a problem and must be submitted with written proof of purchase. Claims are not transferrable or assignable and extend only to the original purchaser/user. Bostik reserves the right to inspect and alleged failure and no responsibility will be accepted unless Bostik is given the opportunity to do so. Bostik limits its liability to the replacement of the product/s proven faulty.

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