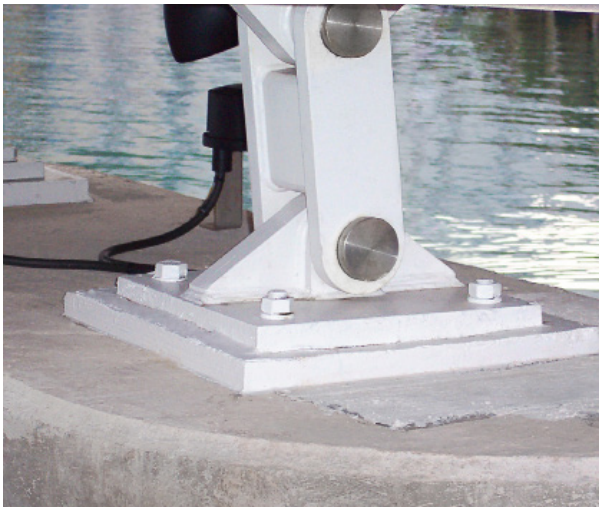
HF
High Flow Precision Grout

Construction Chemicals



Ideal as a bridge bearing grout as well as for the securing of stanchion base plates, machine beds and parapet legs.

- High Flow
- Can be pumped or poured
- Will not corrode or stain
- Non-shrink
- 70N/mm² compressive strength
- Complies with the specification for Highway Works Clause 2601

Applications
UltraCrete HF is a Department of Transport 2601 specification high flow precision grout. Suitable for the infill of voids from 10-100mm, the product is a very dense low permeability material, which does not suffer damage from freeze/thaw conditions. As a result, HF is ideal as a bridge bearing grout, as well as for the securing of stanchion base plates, machine beds and parapet legs.

Preparation
Apply HF to a sound, clean, uncontaminated, dust free surface. Concrete should be roughened to provide a good key. Metal surfaces must have all rust and scale removed and should be free from oil, grease and paint. Removable metal shims should be treated with a light oil coating to prevent damaging the grout when set. Pre-soak the concrete surface with clean water for at least 4 hours (the longer, the better) prior to product placing. Use an airline to remove surplus water, paying particular attention to anchor pockets and recesses. Do not let the surface dry out before grout application. Formwork shuttering should be of sufficient strength, anchored securely and sealed to prevent any leakages.

Mixing
Mixing is best achieved in a clean forced action grout mixer or by a slow speed drill fitted with a paddle attachment. Larger quantities will require a high shear vane mixer. To achieve a flowable mix use up to 4.5 litres of water. A fluid mix will require up to 4.8 litres. Measure the amount of water into the mixer to provide the consistency required. Slowly add the contents of a full bag of Ultracrete HF powder to the water. Mix continuously for 5 minutes ensuring that a smooth even consistency is obtained. It is essential that machine mixing capacity and labour available is adequate to enable the grouting operation to be carried out continuously. This may require the use of a holding tank with provision for gentle agitation, to maintain fluidity.

Precautions
HF is a product based on Portland cements; therefore good concreting practice with regard to placing and curing, especially under winter conditions, must be observed at all times. When the air or contact surface temperatures are 5°C or below on a falling thermometer, warm clean water (30°-40°C) is recommended to accelerate strength development. For ambient temperatures below 5°C the grout consistency should be flowable. The formwork should be maintained in place for at least 36 hours. At temperatures above 35°C mixed grout should be stored in the shade and cool clean water (below 20°C) should be used for mixing the grout.

Chemical Testing
The following results were obtained from the powdered HF, tested independently by SGS (UK) Ltd. Acid Soluble Chloride as Cl – BS 1881: Part 124: 1983 <0.002% by weight of sample Acid Soluble Sulphate as S03 – BS 1881: Part 124: 1983 1.9% by weight of sample Acid Soluble Total Alkali as Na20 – BS 1881: Part 124: 1983 0.31% by weight of Sample Cement Content – BS 4551: 1980 Without Lime 44.3% by weight of sample.

Cleaning
HF should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically, or by acid etching.

Storage

Store in closed original container at temperatures between 5°C and 30°C. Avoid frost. This product must be stored in unopened bags, clear of the ground in cool dry conditions and protected from excessive drafts. If stored correctly and used within 8 months of the date shown on the bag, the activity of the reducing agent will be maintained and this product will contain, when mixed with water, no more than 0.0002% (2 ppm) soluble Chromium (VI) of the total dry weight of the cement.

Shelf life

Shelf life from date of manufacture in correct for sealed bags is 8 months. Please note: the use of this product after the end of the declared storage period may increase the risk of an allergic reaction.

Health, Safety and Environmental

Please ensure that appropriate PPE is used when preparing, mixing and applying products. Always wash your hands before consuming food and make sure that materials are kept safely out of reach of children and animals. Please dispose of packaging and waste responsibly and in accordance with local authority requirements. A full material datasheet relating to this product is available from instarmac.co.uk

Quality assurance

All products are manufactured in a plant whose quality management system is certified / registered as being in conformity with BS EN IS0 9001. Our products are guaranteed against defective materials and manufacture, and will be replaced or money refunded if the goods do not comply with our promotional literature. We cannot however accept any liability arising from the application or use of our products because we have no direct or continuous control over where and how our products are used. All products are sold subject to our conditions of sale, copies of which may be obtained on request.

Technical data

Compressive strength (N/mm^2)	
1 day	29.00
7 days	59.5
28 days	70.00
Flexural strength (N/mm^2)	
7 days	9.25
28 days	9.55
Initial set* (BS4550 part 3: 1978)	8 hours
Final set * (BS4550 part 3: 1978)	11.25 hours
Static modulus of elasticity	ASTM 469-87A 23kN/mm^2
Flow characteristics	(Efflux time) ASTM C 939-87 25.25 seconds
Expansion characteristics	ASTM C 87 0.35% - 1.1% unrestrained
Fresh wet density	BS 1881: Part 107: 1983 2160kg/m^3
Colour	grey *As with all raw materials, colour variation may occur. Please note that this does not affect the consistency or characteristics of the product.*
Coverage	approx 75 bags per cubic metre
Yield	Allowances should be made for wastage when evaluating quantities required. The approximate yield per 25kg bag for different consistencies are: Flowable: 13.25 litres; Fluid: 13.50 litres
Unit/packaging	25kg paper bag (56 units per pallet)

The above results were obtained at a fluid consistency (i.e. 4.8 litres of water per 25kg bag), tested by SGS (UK) Ltd at 20°C (report ref 6580/910/M). This product was formerly known as Cemflow HF.

*Depending on temperatures – tests carried out at 20°C. Cool temperatures retard, warm temperatures accelerate product performance.