

High flowing non-shrink
cementitious grout

About this product

Five Star Grout Sp is a premixed cementitious grout, developed for applications where an economical grout with good flow and retention of flow and higher strengths is required.

Five Star Grout SP is based on specially selected Portland cements, graded aggregates and admixtures including a special form of carbon. This special formulation produces a grout which is non-shrink by ASTM C827 "Early Volume Change of Cementitious Mixtures." It does not contain iron, aluminium or other additives which produce non-shrink characteristics by chemical reaction. This eliminates any subsequent problems of dimensional instability, corrosion or staining.

Five Star Grout SP is designed primarily as a flowing grout but can also be used at trowellable consistency.

Uses

- Under machinery and stanchion plates.
- Grouting rails and bridge bearings.
- Fixing bolts.
- Underpinning.
- Void filling.
- Honeycomb repair by pressure grouting.

Features and benefits

- Precision non-shrink over range of temperatures and site conditions.
- Can be pumped, poured or trowelled.
- Does not contain iron, aluminium or other additives which have not withstood the tests of time.
- Thermal expansion similar to that of ordinary concrete.
- Excellent flow properties.
- Early high compressive strengths.
- Can be applied in thicknesses from 10mm to 50mm.
- Does not significantly lose workability during pot life.
- Factory blended to eliminate on-site errors.

Typical properties

Pourable mix at 20°C		
Compressive strength, ASTM C109	24 hours	20 N/mm ²
	3 days	40 N/mm ²
	7 days	50 N/mm ²
	28 days	65 N/mm ²
Tensile strength, ASTM C307	28 days	4.5 N/mm ²
Flexural strength, ASTM C580	28 days	9.3 N/mm ²
Modulus of Elasticity, ASTM C469		25 x 10 ⁴ N/mm ²
Linear coefficient of thermal expansion		12 x 10 ⁻⁶ per °C
Fresh wet density		2200 kg/m ³

Non-shrink properties

The addition of water when mixing causes release of air from the special carbon additive which creates a low pressure expansion during the plastic state when most shrinkage normally occurs.

Five Star Grout SP is shown to be non-shrink by ASTM C827 "Early Volume Change of Cementitious Mixtures" which, unlike other methods, measures expansion or shrinkage from time of placing.

In the fully hardened state Five Star Grout SP does not lose contact with the plate or sides due to long term drying shrinkage.

Flow properties

Flow by Colcrete Flow Trough.
Initial Flow - 600mm.
Flow after 45 minutes - 450mm.

Chemical resistance and durability

When properly placed and cured Five Star Grout SP is a very dense low permeability material which does not suffer damage from frost attack and freeze/thaw conditions. The product does not contain any chlorides, sulphates or other harmful chemicals. Its permeability means it is highly durable and resistant to petrol, oils, diesel fuels, anti-freeze liquid and de-icing salts. For further details please contact our Technical Department.

Preparation

All surfaces should be clean and sound. Concrete surfaces must be free from any contamination including oil, grease, laitance and dust-and for maximum bond the surface should be roughened and presoaked with clean water. Immediately prior to grouting remove free water including that in bolt holes or recesses. Metal surfaces must be free from rust, scale, oil or grease but removable metal shims should be lightly oiled. Blow bolt holes free of dust, water or any loose material. Formwork should be well sealed to prevent leakage.

Five Star * Grout SP

Application

Five Star Grout SP needs only to be mixed with sufficient water to give consistency required. Mixing should be carried out in a forced action grout mixer. For small quantities, mixing can be by slow speed (max. 500 rpm) drill with suitable grout paddle.

To obtain the consistency required, use the following water content:

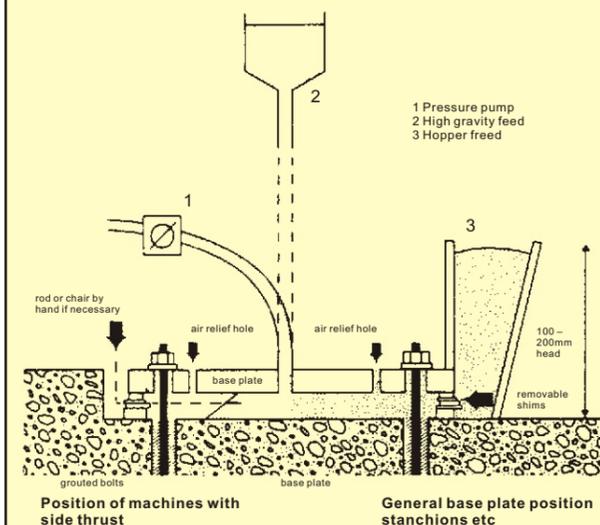
Trowellable Mix : approx 3.0 litres water per 25kg bag.
Pumpable Mix : 4.0 to 4.6 litres water per 25 kg bag.
Pourable Mix : 4.6 to 4.8 litres water per 25kg bag.

When pouring, the area to be grouted should be shuttered and a header box used to maintain a grout head of 150-200mm during the pour. Machine mixing is recommended to achieve continuous pouring. For large applications Five Star Grout SP should be placed by pump and it has been formulated to give a 45 minute working time considered essential for pumping. It does not contain metal particles; wear and tear on equipment is similar to conventional sand/cement mixes.

Mixing and placement can be carried out between +5°C and +40°C. In service Five Star Grout SP will perform similarly to other cementitious mixes based on Portland cement in the temperature range of -20°C to +150°C.

Continuous grout flow is essential and sufficient grout and water should be available to be mixed to ensure there is no discontinuity of the flow.

The diagram illustrates typical methods of placing Five Star Grout SP.



Where the thickness of grout is greater than 50mm, the grout may be bulked out with clean single sized aggregate. However, we have other products, including Five Star Repair Concrete, which may be more suitable. Please contact our Technical Department.

Precautions

AGE Five Star Grout SP is based on Portland cement and good concreting practice with regards placing and curing especially under winter conditions must be observed.

Do not add water above the recommended stated dosages. Use only clean (potable) water.

Packaging and yield

Five Star Grout SP is supplied in 25kg polythene lined bags.

For a pourable mix each 25kg bag produces approximately 13.5 litres of grout i.e. 74 bags per cubic metre. When using the trowellable mix the yield is 12.5 litres i.e. 80 bags per cubic metre. For estimating purposes 5% extra should be allowed for spillage during mixing and placing.

Shelf life and storage

Store in a cool dry place. Shelf life in correct storage conditions for sealed bags is approximately 12 months.

Health and safety

This products contains cement which, when mixed with water is strongly alkaline and may cause skin irritation. Operatives should wear protective clothing and work in well ventilated conditions. If the product enters the eye, wash thoroughly with clean water. If discomfort continues, seek medical advice. In common with all powder products, the product should be mixed carefully avoiding raising dust.

For further information on safe handling, please refer to the Safe Handling Guide, which also contains all data and information relating to the Control of Substances Hazardous to Health

Quality assurance

A policy of strict quality control has always been followed and the requirements of all relevant test standards are strictly adhered.

Technical service

We can provide technical service at the specification stage and/or during application through our Technical Department or Laboratory. Detail specification or further information can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.



* Trade mark of Five Star Products Inc, from whom we have obtained a license to manufacture.

To the best of our knowledge and belief, the information contained in this leaflet is true and accurate, but as conditions of use and any labour involved are beyond our control, the end user must satisfy himself by prior testing that the product is suitable for his specific application, and no responsibility can be accepted, or any warranty given by our Representatives, Agents or Distributors. Test results shown reflect typical figures based on laboratory testing under

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