

**High-flow, high-strength,
shrinkage-compensated,
cementitious precision grout.**

Five Star* grout SP



Uses

- Under machinery and stanchion plates
- Grouting rails and bridge bearings
- Fixing bolts
- Underpinning
- Void filling

Constraints

Five Star grout SP must only be used in confined situations, e.g. under baseplates, in holes etc.

About this product

Five Star grout SP is a premixed cementitious grout similar to standard **Five Star 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 conforms to 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 a trowellable consistency. Meets Highways Agency Specification for Highway Works, Vol. 1, Clause 2601.

Features and benefits

- ▲ Complies with HA Specification Clause 2601.4 at 5°C and 20°C
- ▲ Precision grout suitable for use over a 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 good quality concrete
- ▲ Excellent flow properties
- ▲ Can be applied in thicknesses from 10 mm to 50 mm
- ▲ Does not significantly lose workability during pot life
- ▲ High initial and long term strength development

Technical data

Pourable mix at 20°C.

Compressive strengths:	24 hours	20 N/mm ²
	3 days	30 N/mm ²
	7 days	55 N/mm ²
	28 days	70 N/mm ²
Reported values from independent testing for compressive strength	3 months	80 N/mm ²
	6 months	85 N/mm ²
	1 year	90 N/mm ²
Tensile strength	28 days	4.5 N/mm ²
Flexural strength	28 days	9.3 N/mm ²
Young's Modulus of Elasticity		25 kN/mm ²
Coefficient of linear thermal expansion		12.5 x 10 ⁻⁶ per °C
Fresh wet density		2100 kg/m ³
Chloride ion content		< 0.1%
Unrestrained volume expansion (ASTM C827)		> 1%

Flow properties

Independent testing using the ASTM Flow Cone Test C939-02 gave the following typical results:

at 5°C, flow < 65 seconds
at 20°C, flow < 50 seconds

Five Star* grout SP

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 pre-soaked 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. Ensure that bolt holes are free of dust, water or any loose material. Formwork should be well sealed to prevent leakage.

Mixing

This grout needs only to be mixed with sufficient water to give the consistency required. Mixing should be carried out in a proprietary grout mixer or in a bucket (where the height is at least 1½ times its diameter) by using a medium-speed drill (650 rpm) with an MR4-type helical attachment.

When using the maximum water to obtain a pourable grout, the following procedure is recommended. Pour about 2 litres of water into a suitable bucket, then add half the powder and mix to a thick paste consistency, ensuring any lumps are broken down by the shearing action. Continue mixing, adding more powder and some more water gradually into the vortex. After adding all the powder and having produced a mix of uniform creamy consistency, add the rest of the water slowly into the vortex to obtain the pourable grout. **Do not mix the grout for more than 5 minutes.**

Avoid entraining excessive quantities of air during mixing by keeping the mixing head below the grout level at all times.

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

- Trowellable mix** Approx. 2.8 litres of water per 25 kg bag
- Pumpable mix** 4.0 to 4.6 litres of water per 25 kg bag
- Pourable mix** 4.6 to 4.8 litres of water per 25 kg bag

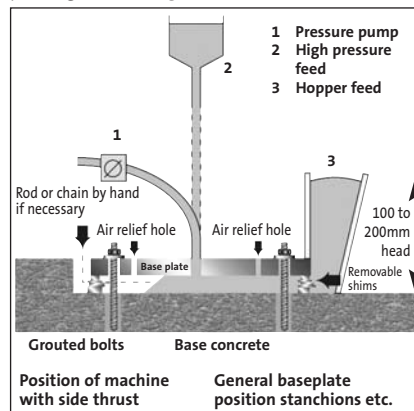
Application

When pouring, the area to be grouted should be shuttered and a header box used to maintain a grout head of 150 – 200 mm 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 50 mm, the grout may be bulked out with clean single sized aggregate. However, other **Weber** products, including **Five Star repair concrete**, which may be more suitable. Please contact our Technical Department.

The grout around the edges of baseplates must be finished flush with the sides by cutting the grout while still green after stripping formwork.

Precautions

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. Avoid leaving unconfined areas of grout proud around bearings etc.

Packaging

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

Coverage

For a pourable mix each 25 kg bag produces approximately 14.0 litres of grout i.e. 71 bags per cubic metre. When using the trowellable mix the yield is 13.0 litres i.e. 77 bags per cubic metre. For estimating purposes, 5% extra should be allowed for spillage during mixing and placing.

Storage and shelf life

When stored unopened in a dry place at temperatures above 5°C, shelf life is 12 months from date of manufacture.

Health and safety

Contains cement (Contains chromium (VI). May produce an allergic reaction). Harmful by inhalation. Irritating to eyes and skin. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical help. After contact with skin, wash immediately with plenty of soap and water. Wear suitable protective clothing, gloves and eye/face protection.

For further information, please request the Material Safety Data Sheet for this product.



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To the best of our knowledge and belief, this information 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. Products are sold subject to our Standard Conditions of Sale and the end user should ensure that he has consulted our latest literature.

Technical services

Weber's Customer Services Department has a team of experienced advisors available to provide on-site advice both at the specification stage and during application. Detailed specifications can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.

Technical helpline
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Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. Please contact the relevant Customer Services Team below for all product orders and enquiries.

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