



# TECHNICAL DATA

## Five Star<sup>®</sup> Superstrength Grout

### High Strength Cement Based Grout

#### Description

**Five Star<sup>®</sup> Superstrength Grout** is new version of the leading cement-based, non-metallic, non-shrink grouts available in the market place. It is a higher performing, multi use, general purpose, precision, construction grout. The advanced technology of this patented grout combines advantages that other manufacturers cannot offer.

This product should be specified for construction site applications demanding higher performance over conventional construction grouts. **Five Star<sup>®</sup> Superstrength Grout** is supplied ready-to-use as a dry powdered product requiring only the addition of water to be used for a wide range of construction applications.

**Five Star<sup>®</sup> Superstrength Grout** is a plastic stage expansion, Class Z grout meeting the requirements of the U.S. Corps of Engineers CRD-C-621-83 for non-shrink grouts.

#### Areas of application

- Structural columns
- Anchors or fixings
- Compressor grouting
- Large heavy operating equipment
- Rail grouting
- Precast and prestressed concrete

#### Features

- High early strength
- Precision non-shrink
- Highest effective bearing area
- Contains devoider
- Long working time
- Most versatile
- Can be used in a range of consistencies from dry pack to flowable

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The information contained in this Technical Bulletin is as up to date and correct as possible as at the time of issue. The data provided should be used as a guide only as the performance of the product will vary depending on differing operating conditions and application methods.

The sale of any product described in this Technical Bulletin will be in accordance with ITW Polymers & Fluids Conditions Of Sale, a copy of which is available on request. To the extent permitted by law, ITW Polymers & Fluids excludes all other warranties in relation to this product.

## General Properties

Shelf Life	: 12 months, unopened, dry
Work Time	: 20 minutes at 25°C
Yield	: Approximately 11 litres (see table below)
Initial Set	: 1 hour minimum
Final Set	: 2 hours minimum

Compressive Strength (AS 2073)	2.8 Ltr water / 20 kg	4 Ltr water / 20 kg
1 day	48 MPa	15 MPa
7 days	65 MPa	45 MPa
28 days	90 MPa	65 MPa

## Estimating Data

CONSISTENCY	WATER RATIO	YIELD	
	Litres / 20 kg bag	Litres / 20 kg bag	Bags / m <sup>3</sup>
Dry Pack	2.8	10.75	93
Trowellable	3.2	11.1	90
Pumpable	3.6	11.4	88
Flowable / Pourable	4	11.5	87

## Application directions

### Foundation Preparation

All surfaces should be free from oil, grease or loose material. If the concrete surface is loose, defective or has laitance, it should be cleaned to a sound base. Bolt holes or fixing pockets should be blown clean of any dirt or debris.

Several hours prior to grouting, the prepared foundation should be flooded for pre-soaking with fresh water. Immediately prior to grouting, any standing water should be removed. Inspect pockets and bolt holes for water removal.

Base plates should be clean and free of all oil, grease and scale. Where necessary air vents should be provided at high spots or shear keys.

Surface preparation guidelines cannot cover all site or field contingencies and it is always recommended that an on-the-spot adhesion test be performed as part of the Standard Quality Assurance audit for the project.

### Formwork

To ensure quick and easy placement of grout, formwork should be placed around the baseplate. Formwork should be higher than the underside of the baseplate, and should be well fixed, watertight and treated with a concrete release agent.

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#### NEW ZEALAND

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## Placement

To ensure continuous grout flow any bolt holes should be pre-grouted level with the substrate. Sufficient grout must be available prior to commencement and the time taken to pour a mix balanced with the time taken to prepare the next one. Pour from one side only to eliminate the creation of voids by entrapment of air or any surplus pre-soaking water. A grout head must be maintained at all times so that a continuous grout front is achieved.

Make certain that the mixed grout is placed promptly (within 20 minutes of mixing) and continuously, before expansion commences. Grout bed should be finished level with the underside of the baseplate.

## General Mix Design and Mixing

Use a high shear mechanical mixer or power tool (400 rpm) and appropriate mixing paddle. Refer to ITW Polymers and Fluids Technical Department for suitable choices. Ensure that machine capacity and manpower is adequate to enable grouting to be carried out as a continuous operation. Observe the accurate gauging of water addition and the mixing time. When using a mechanical mixer to prepare pump and flow consistency grouts, add approximately 90% of the recommended water requirement to the mixer first and then add the dry powder. Mix for 2 minutes before adjusting the consistency with the remainder of the water. Mix until homogeneous for at least another 3 minutes. Do not REMIX. For best recommendations contact ITW Polymers and Fluids Technical Department.

## Curing

On completion of grouting, cover all exposed grout with wet burlap and plastic to prevent moisture loss. Maintain until grout has hardened. After cutting back or finishing, continue curing, for a minimum of 3 days with wet burlap followed by the application of **Max-Cure Cementitious Grout Curing Compound**. Failure to prevent early moisture loss and ensure long term curing, can result in plastic cracking, drying shrinkage, cracks in grout shoulders and a possible reduction in ultimate strength development.

## Cleaning

**Five Star® Superstrength Grout** should be removed from tools and equipment immediately after use with clean water.

## Limitations

**Five Star® Superstrength Grout** should not be applied at temperatures below 5°C.

## Storage and Shelf life

When stored in original sealed containers under dry conditions shelf life is 12 months.

## Packaging

**Five Star® Superstrength Grout** is available in 20 kg moisture resistant, multi ply bags.

## Ordering Information:

20 kg bags #991621

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## Safety precautions

**Five Star® Superstrength Grout** is non-toxic, but is alkaline in nature. Gloves should be worn. Splashes of grout to the skin or eyes should be washed off with clean water. In the event of prolonged irritation, seek medical advice. Keep contents away from children.

**TDG Code:** Not Classified.

## Note

The figures quoted for work time, setting time and strengths are not definitive. They are dependent on job site conditions and will vary accordingly. In all cases we endeavour to provide typical figures for use as a guide.

## Health & Safety Information

The product is hazardous. A Material Safety Data Sheet is available from the ITW Polymers & Fluids Technical Department upon request or available on our website [www.epirez.com.au](http://www.epirez.com.au) .

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