PSA Connection Grout

Technical Data Sheet

PSA CONNECTION GROUT

PSA Connection Grout is a specially designed cementitious non shrink grout for use in critical applications where shrinkage needs to be eliminated, and ultra-high strength is required.

PSA Connection Grout was tested for special purpose use with the PSA S-Connection and PSA M-Connection systems.

PSA CONNECTION GROUT - ADVANTAGES

- Dual expansion system compensates for shrinkage and settlement in the plastic state as well as longer term shrinkage.
- No metallic iron content to cause staining.
- Prepackaged material overcomes potential on-site batching variations.
- Develops high early strength without the use of chlorides.
- High ultimate strength and low permeability ensure the durability of the hardened grout.

DESCRIPTION

PSA Connection Grout HS Ultra is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a flowing non-shrink grout for gap thicknesses up to 100mm.

PSA Connection Grout is a blend of Portland cement, graded fillers and chemical additives which impart controlled expansion in the plastic state whilst minimising water demand. The low water demand ensures high early strength. The graded filler is designed to assist uniform mixing and produce a consistent grout.

APPROVALS / CERTIFICATES

PSA Connection Grout is approved by the Department of Main Roads Qld (TMR) 2019 and included in the 0Product Index for Bridges and Other Structures, Section 5. Registered and Conforming Products – section 5.33 Repair Materials (Concrete) – Grouts.

PRODUCT INFORMATION

Item Code	PCONGROUT
Packaging Size	20kg Bag
Colour	Grey
Appearance	Pre-mixed Powder
Shelf Life	6 months from the date of production
Storage Condition	Store properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +10 °C and +35 °C. Protect from direct sunlight.
Maximum Grain Size	D_{max} = 0.3mm

TYPICAL PROPERTIES

Compressive Strength	30MPa @ 4 hours 45MPa @ 1 day 75MPa @ 7 days 110MPa @ 28 days
Start expansion time	5 Minutes
Finish expansion time	2 hours
Fresh Wet Density	Approximately 2240 kg/m^3, depending on the consistency used.
Expansion characteristics	An expansion of up to 1% overcomes plastic settlement in plastic material.
Initial Setting Time	240 Minutes
Final Setting Time	310 Minutes

Note: Compressive Strength determined in accordance with AS 1012

APPLICATION INFORMATION

Preparation of Foundation Surface

The substrate surface must be free from oil, grease or any loosely adherent material.
If the concrete surface is defective or has laitance, it must be cut back to a sound base.

Pre-soaking

For foundation use, the area of cleaned foundation should be flooded with fresh water several hours prior to application.

Mixing Ratio

The following table lists litres of clean water required for a 20kg Grout Bag. All mix ratios are a guide. Preliminary trials at local temperature and humidity condition are recommended.

Grout Consistency	Water (litres)
Stiff	2.9
Plastic – Trowelable	3.0 – 3.2
Flowable	3.4 – 3.8

Note: M-Connection & S-Connection best suited 3.6 Litres/ bag – ensure that sufficient grout is prepared having a smooth and flowable consistency, to ensure the connection may be filled in an even, continuous manner.

Layer thickness

Grout Consistency	Thickness (mm)
Stiff & Plastic	10 min / 100 max
Flowable	10 min / 50 max

Placement Temperature

Ambient Air and Substrate Temperature: +10 °C min. / +35 °C max.

Pot Life

Approximately 30 minutes

Consumption

Yield in plastic consistency: 10 litres per bag.
Yield in flowable consistency: 11 litres per bag.

APPLICATION STEPS

Mixing

Place about 70–80 % of the premeasured clean water (depending on consistency required – refer to "Mix Ratio") into a clean container and gradually add the whole bag of PSA Connection Grout into it while continuously mixing. Add the remaining water until the desired consistency is obtained.

Mix for 5 minutes with a low-speed drill (500 rpm max.).

For best results a mechanically powered grout mixer should be used. When quantities up to 40kg are used, a slow speed drill fitted with a high shear mixer is suitable. Larger quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.

To enable the grouting operation to be carried out continuously, it is essential that sufficient mixing capacity and labour are available. The use of a grout holding tank with provision to gently agitate the grout may be required.

Application

Use flowable consistency for use in M-Connection & S-Connection.
Pour by use of a water can or similar to provide for an even and continuous flow until the void is full.

After mixing, stir lightly for several seconds to release any entrapped air.
The grout may then be poured immediately into the prepared formwork.
When carrying out baseplate grouting, ensure sufficient pressure head is maintained for uninterrupted mortar flow. For formwork repair, the prepared formwork must be firmly in place and kept watertight

When placing grout over a large area, it is important to maintain a continuous flow throughout. Work sequence must be properly organised to ensure an uninterrupted flow. In large areas, PSA Connection Grout may be pumped using heavy duty diaphragm pumps. Screw feed and piston pumps may also be used.

Applications

Area of Application	Type of Application	Consistency
PSA S-Connection	pouring	Flowable
PSA M-Connection	pouring	Flowable
Grouting under baseplate		Flowable
Formwork grouting	Pouring method	Flowable
Formwork grouting	Prepacked method	Flowable / Plastic
Grouting Anchor Bolts		Plastic / Stiff
Dry Pack / Precast Grouting		Stiff

Grouting large Volumes

For sections thicker than 100 mm, it is necessary to fill PSA Connection Grout with graded 10 mm silt free aggregates to minimise temperature rise generated during the curing stage. The quantity of aggregates should not exceed 1 part aggregates to 1 part PSA Connection Grout by weight. For such mixes, a conventional concrete mixer and pump may be used. To further ensure that air entrapped during mixing is allowed to fully escape, it may be necessary to make breather holes. Use steel rods or chains to assist the flow of grout where necessary. Preliminary trials are recommended.

Curing Treatment

When formwork type repair is used, leave the formwork in place for at least 3 days.
Upon removal of the formwork, cure the exposed surfaces immediately with Antisol® curing compound or use other approved curing methods.

Cleaning of Equipment

Clean all tools and application equipment with water immediately after use. Hardened or cured material can only be mechanically removed.

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