



# SmartNS Grout 100

## High Strength Pressure Grouting

**SmartNS Grout 100** is our premium high strength cementitious non-shrink grout that is specially designed for pressure grouting. It consists of selected sand, cement and chemical additives to provide a free flowing and non-shrink grout with excellent strength performance. **SmartNS Grout 100** is cost effective with high fluidity property. It is extremely flowable for use with gaps width of 10 to 100 mm. When cured, it is similar in appearance to concrete.

### FIELDS OF APPLICATION

**SmartNS Grout 100** is used for free-flow, non-shrink grouting in a wide range of applications such as:

- Cable grouting
- Anchor bolts
- Structural members such as precast wall panel, beam and column, retaining walls
- Concrete repairs
- Crane rail assembly
- Underplate grouting
- Bedding bearing plates

### BENEFITS

- Highly flowable
- Non-bleeding
- Non-shrink
- Pre-packed convenience and factory assured quality
- Consistent high strength performance
- High early and ultimate strength
- Chloride free
- Excellent initial flow and flow retention

### TECHNICAL DATA

PROPERTY	TYPICAL RESULTS	
Compressive Strength		
@ 7 days	≥ 70 N/mm <sup>2</sup>	
@ 28 days	≥ 100 N/mm <sup>2</sup>	
Setting Time	Initial Set	≥ 1 hour
	Final Set	≤ 10 hours
Volume Expansion (ASTM C940) @ 3 days	≤ 0.4%	
Shrinkage @ 28 days	0%	
Flow Consistency	10 - 30 seconds	
Appearance	Grey	
Filler	Graded Sand	
Density	Dry	-
	Wet	2000 - 2200 kg/m <sup>3</sup>
Yield	0.012 m <sup>3</sup>	
Holding Pressure	10 psi / minute or depending on site requirements	
Open Time	-	
Coverage per bag	-	

• All the data shown are based on controlled laboratory test (T=27±2°C and RH=60%)

### SURFACE PREPARATION

- Surfaces to be grouted should be clean, free from rust, laitance, grease, oil, dirt, paint and any other contaminants present.
- Surfaces to be grouted must be dampened with water before grouting and kept moist at all times during application.
- For more info, refer to our Grouting and Anchoring Application Guidelines.

## **MIXING**

### **Fluid & Flowable Consistency**

- **SmartNS Grout 100** should be mixed with a mechanically powered mixer.
- Dampen the mixer blades with water prior to mixing the initial batch.
- Mechanical powered mixer should not have any free-standing water on it.
- Place around 80% of the recommend amount of clean water into a mixing pail then add in **SmartNS Grout 100** powder slowly into the mixing pail and mix until a smooth and uniform consistency is achieved.
- Next, add the remaining 20% of the recommended amount of clean water while still mixing until a desired consistency is achieved. The remaining water can be discarded at this point.
- Mix for around 3 - 5 minutes until a homogeneous and lump-free mix is achieved.
- Please note that the instruction amount provided is meant for every 25 kg bag used.

### **Plastic / Stiff Plastic / Stiff Consistency**

- To achieved these consistencies, the majority of the steps are the same as the steps given for fluid / flowable consistency.
- However, instead of pouring 80% of the clean water into mixing pail at the start, pour in 60% of the clean water by volume into the mixing pail first, and the remaining 40% later.

### **Semi-Precast Grout Application (Stiff Plastic Consistency)**

- We recommend using a plastic consistency for **SmartNS Grout 100** with a maximum of 2.5 litres of water per 25 kg bag when doing semi-precast grout applications.

## **PLACING**

### **Large Volume Grouting**

- For grouting thickness exceeding 75 mm, we recommend adding clean, well-graded 10 mm aggregates to reduce the temperature rise.
- Maximum 0.5 part of aggregate to 1 part of grout by weight.
- For mixing and placing, a conventional concrete pan mixer and pumps may be used.

### **Underplate**

- Ensure that there are sufficient bags placed near the work site as **SmartNS Grout 100** must be placed quickly and continuously.
- Formwork must be sealed to prevent any grout leakage.
- A grout head must be maintained at all times so that a continuous grout front is achieved. It is advisable to use a hopper for this purpose.
- Placing should only be from one side of the void to prevent air or pre-soaking water being trapped.
- Ensure that no vibration is introduced during placing.

### **Pre-placed Aggregate Grout**

- We recommend pumping or pouring the grout into place.
- This method will slightly reduce the compressive strength development as well as the ultimate strength of the concrete as opposed to flowing grouts.

### **Pumping**

- **SmartNS Grout 100** may be applied via the use of ram, diaphragm and piston style grout pumps fitted with ball valves.
- For more info, refer to our Grouting and Anchoring Application Guidelines.

## **CURING & TREATMENT**

- All exposed areas should be thoroughly cured after the finishing of the grout is completed.
- This should be done by continuous application of water or curing compound.
- For more info, refer to our Grouting and Anchoring Application Guidelines.

## **COVERAGE / YIELD**

<b>CONSISTENCY</b>	<b>MIXING WATER (per 25 kg bag) (Estimated)</b>
Fluid	3.4 - 3.8 litres
Flowable	2.9 - 3.3 litres
Plastic	2.6 - 2.8 litres
Stiff Plastic (Semi-Precast)	2.4 - 2.5 litres

- Flow Consistency: 10 - 30 seconds

## **PRECAUTIONS**

- Avoid eye and skin contact as the product is alkaline.
- Gloves, goggles and dust mask should be worn.
- Avoid inhalation of dust during mixing.
- Wash thoroughly after handling.
- In case of eye contact, flush with plenty of clean water. Seek medical help immediately.

## **PACKAGING & STORAGE**

**SmartNS Grout 100** is supplied in 25 kg bags and has a shelf life of 12 months if stored in a cool and dry place in sealed packaging with sheltered protection from rain and sunlight.

## **DISCLAIMER**

All information was prepared carefully, using current references available to us. Information provided is to the best of our knowledge and belief, accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself/herself as to the suitability and completeness of information provided here for their intended use. We do not accept liability for any loss or damage that may occur from the use of this information.