

TowerBase Grout 100 HW

Specialised structural grout for wind turbine bases in hot weather

Performance Requirements

The function of **TowerBase Grout 100 HW** is to fill the gap between a tower base and its underlying concrete support. The product must have sufficient strength and dimensional stability to resist dynamic stresses transferred to the grout through the base plate emanating from wind and other causes of kinetic energy transfer.

Installation characteristics must be such that full effective bearing area is achieved for various installation conditions.

Critical installation conditions in South Africa include high heat (+30°C) and low ambient relative humidity (under 35%).

Consideration has been given to typical depth of cavity to be grouted, circumference of annulus and withstanding typical temperatures of steel base plates.

Constituents

TowerBase Grout 100 HW is formulated with CEM I 52.5 as the primary binder and micron size pozzulanic secondary binders including PFA, sub-micron and nano-sized fumed silica particulates, for optimum mechanical packing and rheology control. Dimensional stability is catered for by the grout being non-bleed, slightly

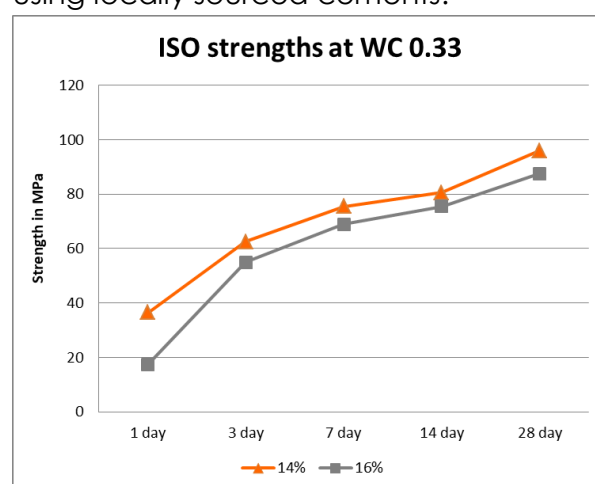
expansive in the plastic phase and shrinkage compensated in the early hardened phase. Chemical admixtures are included to provide flowability and delay of early set at low water addition rates. Siliceous aggregates optimally graded from 75 micron to 5mm, are included for low water demand and mechanical packing for high strength and excellent in service performance.

Initial Flow and Workability Retention

Testing has been conducted at water addition rates of 14% and 16% by mass of grout (the independent laboratory included below). The tests indicate excellent initial workability and exceptional workability retention (at ambient of 26 – 27 °C)

Hardened Properties

Initial trials on **TowerBase Grout 100 HW** indicate excellent strength development using locally sourced cements.



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Warranty

Samson warrants that its products will perform as declared in its literature and this warranty extends only to the replacement of any of its products that may be proven to be defective.

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Samson Technologies retains the right to change any information in our literature, at any time, without prior notification.

Compressive Strength (MPa)		
	14%	16%
1 day	36.5	17.5
3 day	62.5	55
7 day	75.5	69
14 day	80.5	75.5
28 day	96	87.5

General Comments

The above performance factors have been achieved with a South African cement of fineness between 420 to 450 square meters per kilogram specific surface area. For commercial and logistical reasons imported cements should be avoided if a fit for purpose grout is achievable with South African cements.

Method Statements

Methods of installation must be considered to ensure effective load bearing capacity.

Samson believes that tailored method statements for individual projects will be required and therefore no standard method is proposed in this document. For example, some applications may require flowability and thixotropy. Some applications may require grout pumping and then rodding. A tremie may be appropriate for particular applications. Shuttering and paddocking may be required.

Each application should be project specific, dependent on the environmental conditions, base dimensions and distance between the underside of the base plate and the top surface of the supporting concrete. Samson has the experience and track record to devise projects specific method statements.

Time	Slump in mm SANS 5862-1	
	14%	16%
T0	200	250
T15	150	250
T30	120	250
T45	90	250
T60	75	250
T90		250
T135		230
T165		

Time	Flow in mm SANS 5862-2	
	14%	16%
T0	200 FT	> 600 SF
T15	175 FT	> 600 SF
T30	170 FT	> 600 SF
T45	160 FT	> 600 SF
T60	150 FT	> 600 SF
T90		> 580 SF
T135		> 550 SF
T165		> 530 SF

FT = Flow Table
SF = Slump Flow Test



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