

VELOSIT® NG 511

Non-Shrink Grout With High Performance For 6 – 50 mm

DATA SHEET



HYCHEM

velosit

VELOSIT NG 511 is a cementitious non-shrink grout for concrete substrates. It is used to fill large voids or underneath base plates of machinery or building columns up to 50 mm clearance.

VELOSIT NG 511 creates an extremely well bonded, high strength connection between concrete and concrete or concrete and steel.

VELOSIT NG 511 is a double shrinkage compensated cementitious grout with quick strength development.

VELOSIT NG 511 is the result of many years in the field testing and research. VELOSIT NG 511 is a cementitious non-shrink grout for concrete substrates.

TYPICAL APPLICATIONS

- Interior and exterior use
- Repair of large surface defects on concrete
- Filling of gaps between two concrete bodies
- Grouting of machinery and construction columns
- Application thickness from 6 mm to 50 mm
- Anchoring of starter bars and dowels

PROPERTIES

- Minimal shrinkage
- Slight volume increase in the plastic stage to ensure good bond to base plates
- Excellent workability
- Wide range of water addition allowing consistencies from plastic to fluid
- Fiber reinforced
- Advanced corrosion inhibitor technology
- 60 min. working time and 12 MPa (1740 psi) compressive strength after 6 hours
- Open to foot traffic after 6 hours
- Water curing only under hot and dry conditions required for max. 4 hours

TECHNICAL DETAILS

Color	gray
Mixing ratio by weight	100 : 14
Mixing ratio by volume	100 : 24
Density	1.7 kg/l
Substrate temperature	5 – 35 °C (40 – 95 °F)
Initial set	120 min.
Final set	200 min.
Compressive / flexural strength in fluid consistency (16 % water per bag)	6 hours: 12 / 3 MPa (1740/335 psi) 24 hours: 36 / 6 MPa (5075/870 psi) 7 days: 58 / 9 MPa (8410/1305 psi) 28 days: 71 / 10 MPa (10295/1450 psi)
Chloride ions	< 0.05 %
Carbonation resistance	passed
Capillary water absorption	0.1 kg/m ² x h ^{0.5}

Adhesive strength*, concr.	2.2 MPa (319 psi)
Restrained shrinkage*	2.1 MPa (305 psi)
Fire rating EN13501-1	Class A1

*acc. EN 1542. Adhesion depends very much on proper surface preparation!

APPLICATION GUIDELINES

Surface preparation

VELOSIT NG 511 is designed for concrete and steel substrates.

Steel

must be prepared to a purity of SA 2.5 acc. SIS 05 5900.

Concrete

substrates must be prepared with sand blasting, shot blasting or ideally high pressure water blasting (> 100 bar/1450 psi) to remove all bond breaking substances.

Remove all carbonated concrete. Test with Phenolphthalein or other suitable indicator until concrete with sufficient alkalinity for rebar protection is reached. If rebar is exposed remove concrete at least 6 mm behind rebar to fully embed the steel into VELOSIT NG 511.

Substrate must be rough, open porous and load bearing. The minimum requirement for adhesive strength is 2.0 MPa (290 psi) and for the compressive strength 30 MPa (4350 psi). Before the application of VELOSIT NG 511, dampen the substrate with clean water to a saturated surface dry (SSD) condition. Remove standing water puddles.

Processing

Mixing

Mix VELOSIT NG 511 with 13 – 16 % potable water, i.e. 2.5 – 3.2 l water per 20 kg bag. Fill the 13 % mixing water (2.5 l per bag) into a suitable bucket and mix the powder with a slow speed drill (300 – 600 rpm) into the water until a lump-free mix is achieved. Add up to 3 % water under stirring until the desired consistency is achieved.

The product is workable for 60 min. at 23 °C.

Manual application:

Pour VELOSIT NG 511 can be applied directly onto the proper prepared substrates. The product can be applied into voids of minimum 6 mm and up to 50 mm width. Make sure to work in sections that can be finished within 15 min. Cooler temperatures extend, warmer temperatures reduce the working time. Rebars and other penetrations must be fully embedded into the mortar. If grouting underneath large base plates use a fluid consistency. The max. travel distance of the grout depends on the min. clearance of the gap. Without forcing the material the travel distance is approx. the gap width multiplied by 50. For example a 50 mm gap allows 2.5 m travel distance just by gravity.

Pump application

Suitable grouting pumps are for example:

- PFT GmbH: PFT G4
- HighTech GmbH: HighComb Big
- Wagner GmbH: PC 25
- Putzmeister GmbH: SPI2 or MP 25

In mixing pumps feed the powder into the product hopper and adjust the water to the desired consistency. With grout pumps add the mixed product as described under „Mixing“ into the feed hopper of the pump and pump continuously.

Long spray interruptions may result in clogging of the spray hose. The product may cure a lot faster if the hose is exposed to direct sunlight. Always empty and flush the machine after pumping or before long work interruptions. VELOSIT NG 511 is a fast curing material and may be hard to remove if left in the machine.

Never vibrate VELOSIT NG 511 to increase flow. Use wood or a steel rod to move the material in place.

Curing

VELOSIT NG 511 does not require long term curing as it reacts relatively fast with water. Only under hot weather or very dry conditions water curing for max. 4 hours is required.

COVERAGE

Repair of surface defects:

20 kg* VELOSIT NG 511 result in approx. 10.5 liter cured mortar.

* 20 kg VELOSIT NG 511 powder + 2.6 kg water, i.e. 22.6 kg mixed material per bag

CLEAN UP

VELOSIT NG 511 can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid and mechanical cleaning are required.

PACKAGING

20 kg watertight plastic bags.

STORAGE

In unopened original packs for 12 months at 5 - 35 °C (40 - 95 °F) in a dry storage place protected against sunlight.

SAFETY

Please observe the actual valid material safety data sheet and follow the described safety measures for handling of the product.

NOTE: Customer responsibility

The technical information and application advice given here is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the products suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation.

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If unsure contact Hychem for further technical advice before proceeding.

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