

Feature

Hassle free Post-Tension Cable Duct Grouting

CONMIX has introduced a new method of cable flow grouting with 'Just Add Water' Technique.

Post-tensioned concrete is being used for many decades around the world in a variety of construction projects like bridges, buildings, tanks, silos, parking structures, seismic walls etc. Post-tensioned structures offer numerous advantages including reduced dead load and member depth. In addition to this, post-tensioning also allows for increased span-to-depth ratio.

One of the main reasons for increasing use of post-tensioning systems is the advancement of technology in recent years. Older post-tensioning systems were mainly focusing on obtaining the desired pre-stress force and not on durability, which is the prime reason of many project failures.

It was apparent that some of the tendon corrosion protection systems used could not adequately protect tendons in the most aggressive environments. With the development in technology and improved work practice, durability aspects are being considered very seriously in recent systems. A new concept of multi layer protection of structures has been created; this includes design of the structure, waterproofing membranes in case of critical surfaces exposed to water, dense concrete with minimum permeability, leak tight encapsulation of tendons and most importantly, protection of pre-stressing steel with cementitious grout.

New specifications are being designed and modified to address the corrosion problems. Cementitious grout is the key element of the overall corrosion protection which provides excellent shield for the pre-stressing steel. The principle objectives of grouting are to protect the pre-stressing steel from corrosion by encasing it in a passive environment and filling the duct to minimize voids in the complete structure.

The specifications of cement grouts used in the past for post-tensioning tendons were not stringent enough in terms of acceptance criteria. And other test methods which were being used were not resourceful to detect poor performance of a particular grout mix. Specifications for cementitious grouts have changed over the years and new specifications issued by Post-Tensioning Institute (PTI) and other international standards like European Standards, EN 445, 447 have introduced test methods that are in line with the actual conditions at site. For example, the 'Wick Induced Test' requires an actual strand to be inserted into the grout during testing of bleeding and volume change which is similar to the condition at site.

Benefits of using factory mixed grout

Important technical properties of the grout used for post tensioning are **Flow ability** - to ensure complete filling of the tendon ducts, **Volume**



Post Tensioned Concrete Slab

change - for positive expansion to completely fill the tendon ducts, **Bleeding** - to limit free water inside the tendon duct, and to reabsorb any bleed water within the specific time and **Strength** - to provide indication of the grout quality with respect to its bond and shear strength. The constituents of cement grouts have complex interactions particularly when it comes to admixture and cement compatibilities

The traditional practice of post-tension grouting involves mixing of cement, additives and water at site just before grouting operations. This may lead to considerable inconsistencies in properties of grouts due to any

variance in cement with respect to source, type, specific surface, age and contents like chloride & tri-calcium aluminates, in spite of using a single source of admixture.

The best way to ensure durability of the grout used to protect the tendons is by applying the factory mixed ready to use grout material, where only water needs to be added at site. This avoids various inconsistencies and operational problems that may occur if the constituents are mixed at site, thereby guaranteeing reliable performance.

A perfect solution

NanoGrout CFG is factory controlled, premixed, non-shrink cable flow grout for the post-tension ducts and sonic tubes. This product has attained Dubai Municipality Technical Approval which is a hallmark of stringent quality norms which reflects the supreme quality management system at Conmix. This product has found integral use in the construction of Burj Khalifa, Atlantis Hotel, Dubai Airport and other prestigious projects in the U.A.E. NanoGrout CFG complies with BSEN 445 & 447 standards for post tension cable duct grouting. It is the perfect answer to a long standing search of pre-stressing companies and consultants to have a hassle free grout based on "just add water" technique.

CONMIX Construction Chemicals division manufactures a comprehensive range of repair products, floorings, non-shrink grouts, waterproofing, sealants, curing compounds, admixtures, mould release agents, bonding agents, tile adhesives and tile grouts. The company follows a quality management system certified to **ISO 9001**, maintaining quality assurance in design, development, production, installation and service. Conmix products comply with all international standards and are used in more than 32 countries. Supported by modern and substantial manufacturing units, well equipped R&D facility, state of art laboratories, experienced qualified engineers, competent technical support department and proactive sales team, CONMIX is an ideal partner for all construction needs.

(Communication by the management of the company)



NanoGrout CFG with ZERO BLEED in Wick Induced Test



Wick induced test