

THE FIGURES OF THE POUR

7

MIXING UNITS

10

LOADING POINTS

6/8

PUMPS WORKING AT ONE TIME TO PLACE THE CONCRETE

85

MIXER TRUCKS

30

TECHNICIANS AND MAINTENANCE ENGINEERS

80,000

TONNES OF SOLID COMPONENTS

200

TONNES OF LIQUID ADMIXTURES

32,836

M³ CONCRETE SUPPLIED



Milan (Italy) RECORD-BREAKING CONCRETE POUR

ONE OF THE LARGEST CONTINUOUS MASSIVE
CONCRETE POURS IN THE WORLD TO FORM
THE FOUNDATIONS OF A NEW HOSPITAL IN MILAN

The 28th of May this year marked the end of placing the largest ever concrete foundation slab in Europe: 33,000 m³ of concrete pumped non-stop for 94 hours by a total workforce of 106 working round the clock for Unical, the concrete supplier. The new Galeazzi Orthopaedics Institute is being built in the area of Milan that hosted Expo 2015. Once completed it will have 16 floors and will reach a height of 90 m, for a total surface area of 150,000 m². The new structure will encompass the

skills and specialisations of two Institutes from the San Donato Hospital Group within one single complex: the IRCCS Galeazzi Orthopaedic Institute and the Sant'Ambrogio Institute. The building is being constructed on a seamless foundation slab measuring 190x50 m with a thickness of up to 3.5 m. The record recently established was for one of the largest volumes of placed concrete ever achieved in the world, by using mixing units just outside the site.



33,000 m³ of concrete were pumped non-stop for 94 hours last May to build the foundation slab of the hospital.





A special, bespoke concrete was designed for the pour. The new Galeazzi Orthopaedics Institute is being constructed in the former Expo area in Milan.

A TEAM EFFORT FOR MADE-TO-MEASURE CONCRETE

Mapei was commissioned by the Works Direction to use its mobile laboratories to take samples and carry out tests on the fresh concrete (slump-flow, J-ring, V-funnel) and to assist during the various preliminary phases prior to carrying out the pour: the design stage, development of the right mix-design, organisation of site logistics, defining the testing schedule and acceptance criteria and monitoring of the concrete after it had been placed.

A special, bespoke concrete was designed for the massive concrete casting which had been carefully developed and modelled using analytical tools to verify its behaviour in terms of temperature trends and rheological characteristics.

Unical Technical Services Department designed the mix so that, once all the components had been charged into the various mixing units, the preparation phase could be completed, and the concrete could be checked when it arrived on site. Two check-points were set up on site and, when the concrete was delivered, staff from the Unical Technical Services Department checked each mixer truck to make sure each batch complied with the specified rheological properties.

DYNAMON XTEND W500 N was used to achieve the results required, an acrylic super-plasticiser for concrete of the latest generation, specifically formulated to mix concrete with a low water/cement ratio and a good maintenance of workability.

Thanks to its special, innovative formulation, DYNAMON XTEND W500 N is an efficient agent used to disperse cement particles, so that the amount of water required for mixing is considerably reduced.

Compared with normal concrete without an admixture, DYNAMON XTEND W500 N allows to design concrete mixes with more than 20% less water, a good workability time, and negligible loss in workability while being transported and unloaded on site.

This admixture was used together with DYNAMON EW, an admixture based on modified acrylic polymer that allows to extend the workability of concrete for extended periods, and MAPETARD, a liquid set-retarding admixture for concrete with low slump loss.

TECHNICAL DATA

Galeazzi Orthopaedics Institute, Milan (Italy)

Period of construction: 2019 and on-going

Period of the intervention: 2019

Intervention by Mapei:

supplying admixtures for concrete

Client: Real Estate Gruppo Ospedaliero San Donato

Design: Binini Partners Architects

Contractor: Edile Engineering & Construction SpA

Concrete supplier: Unical SpA

Mapei coordinators: Massimiliano Nicastro, Andrea Siboni, Pietro Lattarulo, Mapei SpA (Italy)

MAPEI PRODUCTS

Admixtures for concrete: Dynamon Xtend W500 N, Dynamon EW, Mapetard

For further information on products visit www.mapei.com