

Integrated Mixing and Silo Plant for the Production of High-performance Concretes

Key words

Concrete making, concrete technology

Fields of application

Making of mortars, concrete (self compacting ~ (SCC), high performance ~ (HPC) and ultra high performance~ (UHPC)), inorganic mixtures

Methodology and instrumentation

Storage of aggregates for concrete and mortar fabrication at a 16-silo-plant with approx. 3 m³ to 3.5 m³ aggregates per silo. Composition of the aggregates is made by automatic, computer-aided scales. The required water is also measured out and dosed to the mixtures over scales.

The downstream big mixers 250-l-THZ and the 500-l-THZ, respectively, serve to produce concrete for specimens in series from one charge. The drying and the dispersed classifying of the aggregates facilitate to create very exact grading curves and reproducible concretes.

The 150-l-intense-mixer with automatic management of recipes and recording of process parameters (temperature, power input at the mixing tool) is used for new recipes with many components including finest components at low w/b-ratios e.g. for SCC, HPC and UHPC.

Items tested

Making of mortar or concrete from 5 l up to 1000 l for specimens (investigations on repair systems)

Quantities / characteristics tested

Determination of the fresh concrete or mortar properties and reproducible making of mortars and concrete specimens over long time periods with application-oriented use of the continuous mixer range from 5 l up to 500 l.

Uncertainty / reliability of results

The use of classified and dried aggregates connected with gravimetric water dosage and the use of intense-mixer with computer-aided control enables reproducible mixtures of concretes and mortars. Deviations in fresh- and concrete properties are minimized.

Qualification and quality assurance

In Germany and in Europe unique plant combination for research and material testing purposes which was realized in the context of a reconstruction in 1990.

The installations are continuously developed according to the state of the art.

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Further information

The use of dried and classified aggregates allows the exact production of reference concretes for research and testing.



View at the mixing installation with right: 250-l-mixer and left: 500-l-mixer, vacuum cleaner, scales and silo-installation

Gravimetric water dosage and silo, 500-l-mixer



Control stand of silo installation

150-l-high performance mixer with control and measuring installation for power, temperature and recipe-management