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50 hours under water

For seamless production of a 40 x 90 m underwater concrete base plate, the largest truck-mounted concrete pump in Austria, a Putzmeister BSF 63-5.20 H owned by Asamer & Hufnagl (Ohlsdorf, Upper Austria), delivered 3,300 m3 of concrete without interruption. Divers assisted at the job which took two days.

Directly on the banks of the Danube, the city of Linz is expanding the ARS Electronica Center, also known as the "Museum of the Future" with a new building. The general contractor is STRABAG AG. The construction work on the project, costing around EUR 30 million, began in Spring 2007 and completion is planned for the end of 2008.

After time-consuming securing of the pit with sheet piling, drilled piles and bracing, the work on the base plate was carried out four to five metres deep into the groundwater. This is because the foundation of the new building is much deeper than the surface of the Danube. In order to secure the 40 m x 90 m underwater concrete base plate against the water uplift pressures, around 250 tie bolts were driven 7.5 m deep into the ground.

The total of 3,330 m3 underwater concrete for the 1.2 m base plate was supplied by the Linz-based mixing plant Asamer & Hufnagl. The concrete was placed using a BSF 63-5.20 H long-reach boom pump, the largest and most efficient truck-mounted concrete pump in the Asamer & Hufnagl fleet. In order to avoid gaps in the work, it was important to place the concrete in one operation and, if possible, from one set-up site. The concrete used was a C25/30 (B10) with a maximum particle size of 32 mm and 60 to 65 mm spread. Before pumping, a lab technician checked for compliance with the prescribed limits for the concrete spread, temperature and w/c value.

The end hose of the M 63 long-reach boom pump ended in a down pipe, which remained around 40-50 cm under water, submerged in the rising concrete. The wide spread ensured that the concrete distributed itself evenly under water. As soon as fathoming and laser measurements indicated a certain rise in the underwater concrete base plate, the concrete pump operator swivelled his boom a

few metres further and began building up the concrete level again. At complicated areas, such as in corners and around the underwater formwork, divers placed the down pipe exactly in position.

Continuous pumping was also supported by the fact that two truck-mixers were used for staggered loading of the truck-mounted concrete pump's hopper. In total, Asamer & Hufnagl had 15 mixer vehicles working on the 50-hour concrete placement job. During the course of the job, the two machine operators, Alois Edlinger and his colleague Mario Strasser, took turns on the radio remote control. We asked pump operator Edlinger if he had any suggestions on how to improve the Putzmeister M 63. His answer was clear: "Da foilt ma nix ei – a Spitzngrät!" (In high German: "I can't think of anything else - it's a great piece of equipment")

Subtitles

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Splendid backdrop: The staggered loading of the truck-mounted concrete pump with 63 m reach by two truck-mixers meant the site management was able to achieve continuous concrete placement