

Domestic

Logistical star performance

With great competence and a high degree of flexibility, the Berlin-Veltin Branch of the Pump Service betonlift, Hamburg has concreted one of the last underwater floors in the domain of the Anhalter Station and Spreebogen. Half a dozen PM truck-mounted concrete pumps participated here — they placed 16,000 m³ underwater concrete right around the clock — partially from the bank, partially from the floating pontoons.

The total concrete pump logistics for the large concreting was planned long-term by the Branch Manager of betonlift, Berlin-Veltin, Andreas Mahrenholz and the Application Director, Reinhard Otto. The concreting was, however, required at very short notice and the employees of betonlift only had four days time to work out an operational plan for the unusual concreting process. All the truck-mounted concrete pumps required (2 x M 52, 2 x M 42, 2 x M 36) were fetched from Berlin-Veltin. The additional operators required for the shift work were brought from other betonlift locations to the large construction site at Lehrter Station, construction job 1.4. At the same time accommodation and provisions had to be organised for the pump operators for the job that was to take a number of days. Pumping was to commence on Monday, 6 p.m.

Relay pumps increase working area

The concreting of the 1.5 m large floor in the excavation D 2 required special logistics. With the maximum external dimensions of 160 m x 65 m, it was impossible to feed the enormous surface of approximately 10,000 m² exclusively by land with flexible placing booms. As the reach of two M 52 long-reach boom pumps was fully used, betonlift therefore engaged two additional M 42 concrete pumps from the floating decks which served as relay stations. The radius of action of the flexible long-reach boom pumps was thereby considerably increased. Two further modern Putzmeister M 36 were stationed on the opposite bank for continuous concreting of the underwater floor.

The contract for the uniform placing of the concrete below water was taken on by the specialists of the Belgian company, PELLEGRIMS. They worked in several teams — and without divers. Two employees of each 3-man team navigated a raft from the edge of the excavation. This raft was pulled continuously to and fro between the northern and southern bank by cable winches. The third man on the raft monitored the placing of a layer of concrete of exactly 1.5 m high at a depth of 16.5 m below water. The actual underwater concreting was achieved with the aid of a submerged pipe and a special dumping height measuring device.

Underwater concreting with dumping height measuring device

Concrete was conveyed at first from the land via the placing booms and the end hoses of the M 52 long-reach pumps into approximately 20 m long pipelines which were laid on the pontoons. These led to the hopper of the M 42 relay pumps, the end hose of which was formed to make the connection to the dumping pipes. The specialists from PELLEGRIMS attached one large plate (diameter approx. 3 m) respectively to the lower end of the dumping pipes that stood in water. The ascending concrete was passed through this and was uniformly distributed at a height of 1.5 m to all sides. As the dumping pipe remained constantly emerged in the concrete, bleeding was prevented. A second plate was attached 15 m higher to the dumping pipe and served as a measuring device: the concrete level ascended and therefore warned the personnel on the floats by its emerging that the concreting height of 1.5 m has been attained!



The concrete placing booms are controlled precisely by the ERGONIC radio-remote control



Principle of the underwater concreting with measuring of dumping height

The M 52 meter long-reach boom on the pontoons. To keep enough