

Duty Cycle Crawler Cranes & Piling and Drilling Rig **HS 8100 HD and LRB 255 in Moscow** Job Report

**“We build quickly and in high quality.
And Liebherr is helping us!”**

Sergey S. Dyachkov
CEO, Fensma



LIEBHERR



Situation

Red Square: The stage of Russian history and pulsating centre of Moscow. Only forty minutes away, a new bus terminal is being developed on the Sholkovskoye Chaussee. Eleven stories of modern glass design. An attractive selection of shopping and entertainment facilities is elegantly combined with the bus terminal in an architectural complex. Approxi-

mately 1,600 bus services are expected daily. 15,000 passengers per day and at peak times 1,000 passengers per hour. This underlines the importance of a good public transport infrastructure in the Russian metropolis. Designed by the architect Werner Sobek, the contractor Fensma is executing the project with Liebherr equipment.

Implementation

Deep foundation work for the new building is being carried out by a fleet of eight Liebherr machines including seven duty cycle crawler cranes with lifting capacities between 70 and 120 t, and one piling and drilling rig type LRB 255. Cast-in-place slurry walls with a total of 310,000 m² and 3,500 t of reinforcement cages are being installed as a lining wall for the foundation pit. For this purpose two carrier machines are fitted with hydraulic grabs and four with mechanical grabs. These are applied as necessary and are interchanged

between the duty cycle crawler cranes. The slurry wall has a maximum depth of 52 m and is 800 mm thick. Eighteen hours are required for the excavation of one bite with a length of 2,800 mm. A delivery pipe is used for filling the concrete. In addition to the slurry wall the deep foundation fleet from Liebherr is inserting 154 individual barrette piles for foundations. One barrette has a depth of 52 m and a volume of 110 m³ concrete. A total of 800 t steel is being installed.

Challenge

After a construction period of only 2 years, the new complex is due to be completed in 2019. The local contractor Fensma is not only confronted with this time constraint, but also difficult soil conditions: loam, sand, clay and groundwater. Under these conditions it is a particular challenge to achieve the necessary verticality of the slurry wall. However, Fensma specializes in the realization of urban building projects and is relying on the quality and service from Liebherr

during the execution. Efficiency and economy both play an important role. A diesel consumption of only 23 l per hour for the HS 8100 HD, the newest machine in the fleet used by Fensma, is a clear statement. The costs for the modern glass complex amount to 73 million euros (5 milliard roubles). One fifth of these costs are attributed to the deep foundation work.

Technical data: HS 8100 HD

Engine power:	390 kW / 523 hp
Max. capacity:	100 t
Max. line pull:	2 × 275 kN

Max. boom length:	59 m
Operating weight:	89 t
Min. transport weight:	40 t