

Metro Expansion in Milan: Duty Cycle Crawler Crane and Grab prove to be an Efficient Duo

- Modular assembly of the grab for slurry walls with thicknesses between 500 and 1800 mm
- Integrated verticality recording for quality assurance
- 84,000 m³ of slurry walls for the expansion of the “Metropolitana di Milano”

Nenzing (Austria) 9 May 2018 - Recently presented at the Intermat in Paris and already successfully carrying out work for the metro expansion in Milan: Liebherr’s brand new package for slurry wall applications comprising duty cycle crawler crane and hydraulic grab. The interaction is optimized so that work can be carried out quickly and precisely and convinces above all through utmost efficiency.

The hydraulic slurry wall grab is modularly designed and has an extremely robust base body. As the names of the grabs imply, HSG 5-18 C and HSG 5-18 L, slurry walls with thicknesses between 500 and 1800 mm can be installed, depending on the composition. The term “C” (compact) stands for the compact standard design, while the base body of the “L” (large) version is 2.5 m longer. The resulting total height of the grab (9.5 m) and the high weight with low centre of gravity provide for even better vertical positioning and are especially advantageous when installing larger dimensioned slurry walls. When working in difficult ground conditions, the execution of the work can be improved through increasing the dead weight of the grab with an additional weight of 7 t.

The heavy weight of the grab is viable thanks to the proven synchronisation of the free-fall winches. This means the lifting capacity of the duty cycle crawler crane is optimally utilized. The slurry wall package can be optimally adapted to the conditions on the jobsite and convinces, above all, through its extremely high efficiency. Diesel consumption of only 25 litres per hour speaks for itself. The robust construction of the grab is designed for unrestricted use and a long service life. Although part of the slurry

wall package, the duty cycle crawler crane maintains its multifunctionality and can, for example, be quickly converted for chisel application or operation as a lifting crane.

Highest Process Reliability with Recording of Integrated Vertical Positioning

A sensor from the company Jean Lutz SA can be optionally fitted on the grab. It measures the vertical positioning in x, y, and z directions. Through the full integration of the vertical assistant in the duty cycle crawler crane's Liebherr control system, even higher precision can be achieved. Data is transferred from the sensor to the control system via Bluetooth. The current verticality of the bite and any possible deviations are displayed on the monitor in the operator's cab. Using Liebherr's process data recording PDE, all process data are electronically logged, displayed and recorded.

Installation of Slurry Walls for the New Metro Line in Milan

Opened in 1964, the "Metropolitana di Milano" is scheduled to be expanded by 2022 with the new line M4. The 15 km long route with 21 stations between San Cristoforo and Linate Aeroporto is being executed over a period of seven years. The company SAOS s.r.l. is currently installing slurry walls for the new stations in the central section of the jobsite at San Babila. For this work it is relying on the duty cycle crawler crane HS 8100 HD with hydraulic slurry wall grab HSG 5-18 L.

While international crowds stroll through the Italian metropolis, the extremely confined space at the Piazza San Babila is a major challenge for the construction work. In this section SAOS is installing 6,300 m² of slurry walls for the metro extension. At 130 m² per day, the Liebherr package underlines its high productivity. In San Babila, SAOS are excavating bites of 2,800 x 1,200 mm with depths of up to 54 m. Layers of gravel, sand and loam have to be penetrated. One bite requires 16 hours, whereby half of the time is required for excavating. Subsequently the reinforcement is inserted and concrete is filled. During the execution of the work for the new M4 line SAOS has to install slurry walls totalling 84,000 m². SAOA is extremely satisfied and, moreover, emphasizes the flexibility and reliability, as well as the simple and precise operation of the HS 8100 HD. "The Liebherr package is designed so that we can work to our full capacity," Rossi Fabio, Assistant Manager from SAOS explains happily.

Video Slurry Wall Grab

This film clearly explains the design and functions of the new slurry wall grab HSG 5-18 C/L:

<https://www.youtube.com/watch?v=aL-PITM28GE>

Captions

liebherr-HS8100HD-schlitzwandgreifer-1.jpg

The package for slurry wall applications attains an unbeatable performance even under extreme conditions.

liebherr-HS8100HD-schlitzwandgreifer-2.jpg

HS 8100 HD with hydraulic slurry wall grab on the jobsite in Milan.

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