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FOUNDATIONS

Innovative hydraulic concepts were said to play a decisive role in reducing the rig's fuel consumption. It is driven by a 390kW Liebherr diesel engine with about 1,700rpm.

The parallel kinematics have a large working area and enable the leader to be folded back. The 12.5m rig leader absorbs high torque and has been fitted with a rope crowd system for pull forces up to 200kN. Furthermore, the quick connection system allows for the rapid fitting or exchange of working tools.

The cabin on the LRB 16 offers improved operator comfort, with the addition of a modern air conditioning system and an orthopaedic seat with automatic adjustment. All switches, joysticks and pedals have been ergonomically positioned, and safety has been enhanced by the new rear-view and side cameras.

As standard, the new rig is also fitted with control and assistance systems.

The latest addition to UK-based Martello Piling's fleet is the purpose-built MP 6000 rotary bored piling rig. In accordance with the company's philosophy of producing machines with a small footprint and low tail-swinging radius, it is fitted with a Stage 4 engine that delivers 160kW and enables the rig to construct piles up to 1,200mm in diameter.

This new machine comes as part of Martello



Cobiax slab technology was used in the expansion of a two-storey underground garage at the Universitätsklinikum (University Clinic) in Mannheim, Germany

The Hydromill SC-135 Tiger by Soilmecc allows diaphragm walls to be constructed in a variety of soil conditions

Recently, Italian-based Soilmecc also launched a new piece of equipment for foundations.

Its Hydromill SC-135 Tiger offers a range of working radii and module rotations, allowing diaphragm walls to be constructed in a variety of soil conditions. It was also said to guarantee the most accurate level of verticality control at drilling depth.

One special feature on the SC-135 Tiger is the patented hydraulic system, which has filters installed directly on the main lines to avoid breakdown caused by bentonite contamination.

With a hydraulic swivel for plus or minus 90° module rotation, a high-power Cat C27 diesel engine and different winder design solutions, the machine was said to be suitable for jobs of up to 150m in depth.

Also, verticality control has been enhanced by the addition of a high-depth vertical sensor, independent mobile flaps and an on-board DMS display complete with 3D graphic print-out panel options.

The machine's new anti-falling system,

Liebherr's new compact LRB 16 piling and drilling rig, said to be suitable for the diverse requirements of deep foundation work



handrails, ladders, lashing points and reduced-speed mode have made the SC-135 Tiger safer to use. And with a maximum transportation weight of 45 tonnes, it can be relocated easily.

Pile Dynamics' shaft quantitative inspection device (SQUID) can provide measured load-penetration curves at the bottom of a shaft.

Providing information about the cleanliness of the hole and the strength of the interface between a bearing layer and the base of a drilled shaft, SQUID does not require testing personnel to work near the excavation.

Once attached to the end of the drill stem or Kelly bar, the rig can lower the SQUID to the bottom of the drilled hole. When resistance is encountered, the contact plates remain on top of the debris layer, while the SQUID penetrometers move through this layer and into the bearing material.

Load and penetration measurements can be displayed in real time via a wired connection from the SQUID to a wireless transmitter at the top of the hole. The signals of the three displacements and the three penetrometer cone pressures are digitally processed and wirelessly sent to the SQUID Tablet. Alternatively, the wire can be replaced with an on-board wireless transmitter that collects data from several tests at the shaft bottom, and transmits that data back to the SQUID tablet upon return to the surface.

CE

Applying new technology

The Federation of Piling Specialists (FPS) has called for greater main contractor awareness of how BIM (building information modelling) can be used to benefit below-ground construction – specifically piling and substructure work.

The move follows feedback from a recent survey it undertook to look at the impact of BIM on the piling and substructure industry, in which more than 80% of respondents confirmed its beneficial impact, yet also found little call from clients for its application.

Mark Pennington, leading the FPS BIM Working Group, said, "Great progress has been made in recent years with regard to BIM and its adoption into all areas of construction. However, there is still much to be done in widening its application to below-ground construction techniques, such as piling and foundation works."

He added, "The understanding of digital construction must evolve so that BIM users recognise that it does apply to all construction areas, including piling."

The FPS, as part of its BIM activity, is raising awareness at all client levels of the technology's potential benefits to its members' services and activities.

Over the coming months, the FPS will be looking at ways to engage further with clients to ensure the benefits of BIM to piling and foundation works are more widely recognised and taken advantage of.

In particular, the FPS is working with the AGS Data Management Committee to investigate the possibility of using the AGS format for piling information. This would provide a platform for the transfer of piling design and construction information in a digital format.