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Going deep

Keller UK has put a Soilmec CFA rig to the test on piling projects in the UK

Various views of the SF-65 auger rig: the sliding mast (right), in action (far right, upper), and from behind (far right, lower)

Foundations and ground engineering company Keller UK, part of the global player Keller Group, took delivery of a Soilmec SF-65 CFA dedicated drill rig in November 2012. The model was shown for the first time at Intermat 2012 in Paris (France). With an innovative design, the rig has already established itself as one of the best-performing rigs in the continuous-flight augered (CFA) piles technology, Soilmec says.

What distinguishes the SF-65 is the innovative concept design of the sliding mast, made of high-strength steel, which ensures reduced weight and overall dimensions without affecting depth performance.

The sliding mast assembly consists of two parts:

- A fixed slide, which includes the support foot; and
- The mobile mast part that runs along the slide, operated by a 5,000mm stroke cylinder, allows the use of an auger string up to 24m length.

The possibility to perform very high depth piles with the SF-65 was put to the test on a building foundation job site in Wandsworth, southwest London.

"We performed 450mm- and 600mm-diameter piles up to 27m depth formed in London Clay for an extension to a supermarket," Keller Foundations general manager piling Andrew Davison comments.

"The rig enabled us to carry much greater pile loads due to the enhanced depth capability."

In addition, in order to preserve the rig's manoeuvrability, the mast foot was built with a specially shaped design to allow a 360° rotation of the turret.

Southampton project

"We worked with the SF-65 on Mayflower Plaza [a residential construction project] in Southampton," continues Davison, "[which was] a very tight site with 500mm, 600mm and 750mm



diameter piles of up to 24m length with multiple working platform. [This] made the working areas very tight and meant the 360° working ability of the rig was highly effective for the relatively confined spaces".

The rig is mounted on a hydraulic variable gauge undercarriage with telescopic side frames fully made of high-strength steel Berco parts, suitably dimensioned to ensure stability against rollover and 360° drilling.

Powered by a Caterpillar C7 diesel engine that delivers up to 205kW at 1,800rpm, available in Tier III and Tier 4i stages, the SF-65 is equipped with a load-sensing system with hydraulically operated proportional main valves fully exploiting the delivery power.

To reduce noise, air inlets feature soundproof flaps and all canopies are lined with sound-absorbing material. The rotary head, able to transmit up to 150.9kNm-rated torque value, is characterised by its compact design, the low noise and the high performance that guarantee performing piles ranging from 450mm to 1,000 mm in diameter up to a depth of 27m.

The SF-65 is fitted with a 1,050mm-wide CAT cab, designed to be spacious, quiet and comfortable for the operator, assuring high productivity throughout the working day. The cab is fitted with an electro-hydraulic Drilling Mate System (DMS), with a 12in touchscreen monitor control specially designed for CFA drilling. Useful devices help the operator carry out drilling using two pedals only, ensuring maximum comfort for the operator, who usually had to operate the control lever for a long time.

"Environment, quality and safety have always been our first targets as an equipment constructor," says Mark Nelson Soilmec general manager. "In particular for the CFA technology [this rig has] the perfect method for projects in urban centres, as it eliminates vibration and disturbance to adjacent structures and reduces noise emissions.

Nelson continues: "Keller Foundations is currently working in Southampton on a foundations project in Centenary Quay [a new housing project]. They are performing a contiguous wall with 300 450mm- and 600mm-diameter piles 20-24m length with average linear outputs of 400m on the 450mm piles and around 300m on the 600mm-diameter piles.

"The rig is working on a narrow berm area to construct the wall and its excellent visibility, manoeuvrability and its ability to work 360° has allowed the above outputs to be achieved. The rig is working directly opposite an occupied block of apartments so its low noise output has made it the ideal rig choice for this contract.

"It's really important for us that a major and specialised company [such as] Keller Foundation is satisfied with our new innovative product."

The quick rigging/de-rigging time, the ergonomic cab environment and low noise from the rig are benefits to drill crews and engineers on the job.

The emitted noise from the engine, fans and rotary means it is possible to speak normally to someone standing next to you by the rig, Soilmec says. This is often not possible with other rigs of a similar size. The rig's large fuel tank and efficiency mean the rig may go two to three days between fill-ups, the company adds. ▽

"We performed 450mm- and 600mm-diameter piles up to 27m depth formed in London Clay"

Soilmec general manager Mark Nelson: "This rig has the perfect method for projects in urban centres"



For more information: www.soilmec.co.uk; www.keller-uk.com