Soilmec's new rigs at IFCEE

The engineering team at Italian manufacturer Soilmec is constantly looking at ways to improve productivity, whether that be improvement to existing models or the development of completely new options and this thinking was on display at IFCEE in May this year

Soilmec has used the International Foundations Conference and Equipment Expo (IFCEE) to introduce three new piling rig options to the North American market.

During IFCEE, which was held May 10-14, at the Hyatt Regency, Dallas, Texas, Soilmec presented the SM-11, SR-30 Eagle, and SR-65 Blue Tech rigs.

The brand-new SM-11 is a medium-sized rig for micropile and tieback applications, which thanks to its design, can easily be configured for single rotary fittings, double rotary and top hammer to carry out consolidation, micropiles and anchors with different drilling technologies.

With an operating weight of 11t, the rig is assembled on a steel crawler track with ±10 degrees tilting gauge complete with two ground stabilisers fixed on the rear to give increased stability on any soil formation. It can be fitted on demand with a fixed type undercarriage with two ground stabilisers pivoting on the front and two fixed on the rear.

The SM-11 is built around a Cummins F 3.8 diesel engine generating 115kW (154hp) boasting high performance and low emissions in addition to extreme ease of maintenance. The engine is equipped with a low-idle system that automatically adjusts its speed to the rig's needs.

The decision to fit the SM-11 with a large diesel engine allows the rig to utilise and exploit the largest double head and the top hammer configurations.

Soilmec debuted its new medium-sized SM-11 piling rig to North American customers at IFCEE in Dallas, Texas

The hydraulic flow is managed by the full-load sensing control system, which helps reduce operating costs and increase the components' life by smartly managing the power demand.

The SM-11 combines the front of the wall joint and telescopic boom kinematics which allow the machine to drill on the side of the tracks and reaching extreme and confined spaces easily and rapidly.

To ensure smooth operations and enhanced safety the SM-11 can be equipped with the new hydraulic/proportional panel on a pivotal support arm, with controls clearly laid out and located within easy reach, or with a full radio remote control. The rig is fitted with the DMS onboard. The LCD display set on the side of the base machine is used for monitoring and downloading the rig parameters and remotely connecting to the rig.

The SM-11 works with a wide range of rotary heads up to 32kNm (23,602lbft) torque, jet grouting treatment of 12.5m (41ft) depth and a feed system able to transfer up 96kN (21,581lbft) and to reach a rotary cradle speed of 48m/min (157.5ft/min). The rig is equipped with a clamp and breaker with a nominal size of 50 – 320mm (2.0 – 12.6in) or on-demand of 60 – 415mm (2.36 – 16.34in).

SR-30 EAGLE

Soilmec has grown its range with the introduction of a new entry-level model: the SR-30 Eagle.

With an operating weight of 31.3t with a 4x9 Kelly bar, the SR-30 Eagle can be easily transported to job sites without having to disassemble the excavation equipment, thus allowing a very fast setup. ►

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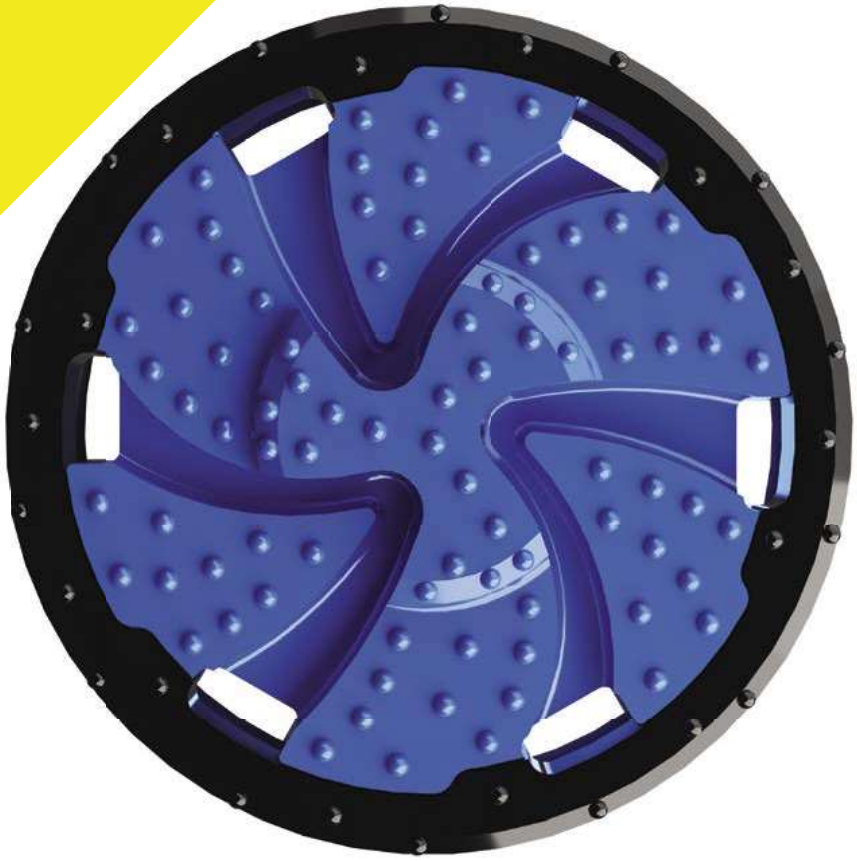

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The SR-30 is the new entry-level in the Soilmec range and is compact enough to be transportable without having to disassemble the excavation equipment

A heavy-duty undercarriage and a counterweight of 3,250kg (7,165lb) allow the SR-30 Eagle to feature an agile turret with a tail swing radius of 3,335mm (131.3in) and to use at the same time the latest generation Soilmec segmental mast, designed to easily switch to the LHR and CFA configurations. This solution enables outstanding technological performance. In its LDP configuration, it is possible to install up to 5x9 self-mounting Kelly bar or not self-mounting 10.5m long bars (34.5ft) with five elements at an excavation depth of 47.5m (155.8ft). The LHR configuration has a minimum height of 7.4m (24.3ft) and can move 5x4 Kelly bars, while the CFA configuration offers a mast extension for a maximum drilling depth of 22m (72.2ft).

The strength of the mast makes it possible to install a rotary with a maximum torque of 131kNm (96,619lbft), capable of optimising torque and rotation speed during excavation thanks to the automatic control of motor displacement.

To better support the rotary performance, the turret has been equipped with the latest generation Stage V/Tier 4f diesel engine equipped with low-idle to improve fuel efficiency and decrease noise pollution. The 4.5L, four-cylinders Cummins engine can deliver a maximum power of 149kW (200hp).

Automated systems on the SR-30 Eagle include the automatic return to the centre hole, the anti-slack rope system and the load cell on the main winch for the Kelly bar version as well as the automatic auger lifting and the auto-rotary and auto-drilling functions for the CFA configuration, which are all available upon request.

SR-65 BLUE TECH

The Soilmec SR-65, introduced at the Orlando IFCEE show in 2018 in the EVO version, has become well known for its performance capabilities in drilled shaft work as well as with segmental casing and CFA. As part of the continued effort to advance drilling technologies, the SR-65 is being upgraded to the Soilmec Blue Tech version which includes a redesigned operator cabin, load-sensing hydraulics and increased mechanical efficiency.

Designed around a new energy-saving architecture, the second-generation SR-65 Blue Tech is a rig that meets the demands of productivity but also improves flexibility and functionality across all drilling setups and technologies. The Blue Tech drilling rigs have been designed to be easy to use and agile on a job site as reflected in the compact design, quick and efficient mobilisation for rapid start-up on job sites and provide a comfortable operator's workplace with drilling specifications that meet today's customer priorities for mechanical performance, safety and productivity.

The SR 65 Blue Tech will continue to weigh in at approximately 71t, which allows for transport of the rig (with Kelly bar on), in most locations, in just a single load. This allows for quick mobilisation with the ability to unload the rig and start working in less than 30 minutes.

At the heart of the SR 65 Blue Tech is a new American diesel engine, a Cummins L9, which delivers 272kW (365HP) at 2,100rpm. The engine meets the Stage V/Tier 4f emission standards and can also be set up to offer a power surplus up to 380hp, making the rig capable of easily handling the most difficult drilling conditions. These diesel engines are equipped with low-idle and automatic radiators' control.

Additionally, the new engines will automatically adjust speed according to the actual needs of the drill. In this way, the engine can improve combustion and cooling efficiency and permit real reductions in noise pollution.

The hydraulic and electric systems have been simplified to minimise energy loss and provide added space for maintenance. The main pumps have been optimised with the new engine to deliver efficient drilling power, pull capacity, performance and fuel efficiency.

In terms of torque, pull up and clearance, the SR-65 Blue Tech ranks top among the available options in the market and represents the ideal choice for use with segmental casing technology.

The rotary head has a compact and lightweight design that can transmit a maximum of 190,660lbft and can be fitted with two different waste discharge systems. The Soilmec spin-off system leverages the high rotational speed cinematic energy that is unparalleled when using an auger. The SR-65 Blue Tech also has a new 'click-click' discharge system that is much more efficient when using a drilling bucket or working in very cohesive soils.

To boost productivity in hard soil and rock, and to minimise loss in tough operating conditions, the SR-65 Blue Tech rotary head is equipped with automatic control of motor displacements. This results in optimising the drilling speed and productivity in every phase of drilling. Ultimately these small selected measures reduce losses make it possible to achieve better torque efficiency on the drill tool.

The rig's tail swing radius is just 148in and the high-strength mast allows the use of a 16.5m Kelly bar to achieve depths of over 250ft.

The mast itself is also prearranged to mount both cylinder and winch crowd systems depending on need or preference.

The cylinder crowd system, with an extraction power of 62,947lbft, is equipped with a double positioner on the drilling mast; this allows the use of the entire available track for both large diameter tools (working under the lower part of the mast) and long casing segments.

The rig can also be equipped with a winch crowd system that can offer a track of more than 16m with extraction power of 74,187lbft. The added stroke and power provide the ability to drive longer casing segments in a single pass.

Additionally, The SR-65 Blue Tech can be fitted with a segmental mast boosting its versatility and low headroom operation capability. The modular mast allows setup of the machine into LHR configuration by simply removing the upper element thus reducing the overall height to just 28ft.

A prominent feature of the Blue Tech advancements is the redesigned Soilmec cab. Working with customers around the globe, Soilmec put the new cab through a ground-up redevelopment and testing process with the goal of operator comfort and safety resulting in better operator performance.

The new cab is equipped with a well-furnished seat featuring a pneumatic shock absorber, vertical, angular and seat-back adjustments, lumbar support and operator's presence microswitch. The position of levers and pedals is designed to provide more space between them and the seat base for better foot support. A powerful HVAC system with re-circulating air ensures a consistent temperature and pleasant work environment even in adverse weather conditions.

The cab also now features enlarged storage containers behind the seat and on the armrests side for better accessibility and operability. Three locked glove boxes (one of which is air-conditioned), a large compartment for placing helmet and jacket, two dual cup holders and a file folder create more usable cabin space. A USB port, phone charger mount (USB or wireless), radio player, ambient lights with LED ceiling lamps contribute to a positive operator experience.

The cab has a front windshield in stratified glass that allows for work without protection grids, moreover, the right-side glass with reduced transmittance increases the monitor's brightness in the cab.

The SR-65 Blue Tech is built in compliance with the most stringent safety standards with special care given to easier accessibility, higher visibility and safer manoeuvrability without losing sight of the eco-friendly characteristics. The rig is equipped with platforms, handrails, video camera kit with a dedicated 7in monitor, adjustable mirrors to see full 360 degrees in all directions, a radio remote control for rig loading and unloading and an automatic acoustic safety alarm during rig travelling and turret rotation.

The rig is equipped with Soilmec's DMS 4.0 (Drilling Mate System). DMS 4.0 provides a simple graphical navigation menu to assist the operator in the day to day planning and drilling execution. With a suite of new functions and automated services that allow for easy set-up and use, DMS 4.0 helps minimise downtime and maximise productivity. DMS 4.0 was also implemented with a wide range of automatic functions to simplify and optimise the operator's drilling activities including an interlocking display system to assist using Kelly bar, automatic return to centre hole or continuous flight auger autodrilling device.

"The ability to drive longer casing segments in a single pass"