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Paul Loudon

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Medium-sized multipurpose drill rig launched

CHANTELLE KOTZE | FEATURES WRITER

Integrated exploration drilling products and services provider Boart Longyear's midsize multipurpose LX11 rig has been received positively in the market since its launch in January this year, with drilling contractors acknowledging the advantages of having a medium-sized multipurpose rig on site.

"Drilling contractors are impressed with the manoeuvrability and flexibility of the rig, as well as its being capable of reverse circulation (RC) and diamond-core drilling," says Boart Longyear senior product manager **Justin Warren**.

After extensive development and hands-on engineering by Boart Longyear at its facility in Europe, the LX11 rig was field-tested at various locations worldwide, including Europe, Australia and Zambia. The rig has already performed diamond-core drilling at an exploration project, in Zambia.

With capabilities to perform RC and diamond-core drilling, the LX11 rig enables exploration drillers to use one drill rig for different ground conditions. This advantage means a lower initial capital investment, which limits the costly downtime required to switch rigs to match drilling conditions.

"The versatility of the LX11 rig enables drilling contractors to supplement the roles of multiple rigs with the simplicity of one, saving on equipment costs," says Warren.

The LX11 rig, which is an addition to the existing line of the LX6 and the LX16 Boart Longyear multipurpose drilling rigs, features improved safety mechanisms, track mounting, a smaller footprint and an overall lower cost of ownership.

LX11
The LX11 rig has already performed diamond-core drilling at an exploration project in Zambia

LOWER CAPITAL INVESTMENT
The multipurpose LX11 drilling rig enables exploration drillers to use one drill rig for various ground conditions

Safety features incorporated into the LX11 rig include a strategically placed control panel for ideal visibility, a remote control for driving the rig at a safe distance and an interlocked safety cage to protect drillers from the rotating drill string. The LX11 rig can also be equipped with a rod handler for safe and efficient handling of both RC and diamond-core rods, says Warren.

The rig's small footprint allows for easier site access and manoeuvrability and it can also fit into a 12-m-high cube container, making it economical to ship to remote locations.

Track mounting increases the mobility of the LX11 rig as it is able to handle steeper grades, which, in turn, lowers its environmental impact.

What makes the LX11 rig unique is that it meets the demand from drilling contractors for a versatile rig that combines the strengths of the mobility of smaller rigs with the pullback of larger rigs.

The LX11 rig comes standard with a customisable tooling package, suited to the needs of the drilling contractor and the different ground conditions. As it is a multipurpose drill rig, it can be fitted with different drill bits to match certain ground formations.

It can reach depths of 1 450 m using NQ-diameter-sized rods when employing diamond drilling and depths of 325 m using 114 mm rods when employing RC drilling. A 7.2 m mast and a top drive head allow 6 m rods to be pulled under the head for increased productivity. The rig's top-drive single rotary drill head features 1 200 rpm and a maximum torque of 7.8 Nm at 100 rpm.

Boart Longyear has supplied mining services and performance tooling to the African region for a variety of mineral exploration projects, as well percussive drill and blast projects.

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Company takes receipt of groundbreaking equipment

CHANTELLE KOTZE | FEATURES WRITER

Geotechnical and exploration drilling company Geomechanics, part of Lanseria-based GeoGroup, has taken receipt of two new drill rigs this year – the DeltaBase 525 DB and Sonic SDC 450-24. The rigs have increased the company's drill fleet to more than 60.

GeoGroup founding member and Geomechanics CEO **Dave Rossiter** tells *Mining Weekly* that while the exploration and geotechnical drilling industry has remained consistent in terms of technological advances in certain types of drilling technology, such as rotary core drilling and percussion drilling, the company aims to stay abreast of technological advances in the exploration drilling sector, particularly in the exploration of minerals, such as in mineral sands, which are difficult to explore.

"The exploration of mineral sands was previously undertaken using reverse circulation (RC) drilling, a destructive percussive drilling method that produces rock-chip samples. Currently, however, the sonic method of drilling, which uses vibratory energy and slow rotations to produce core samples, is better suited and has become the most apparent solution to provide core samples in sand," says Rossiter.

The newly acquired Sonic SDC 450-24 drill rig will enable the company to expand its drilling capabilities of rotary-core drilling, symmetrix overburden drilling, RC drilling and conventional air-percussion drilling to include sonic drilling.

DAVE ROSSITER
Geomechanics aims to stay abreast of technological advances in the exploration drilling sector, particularly in the exploration of minerals, such as in mineral sands, which are difficult to explore

Sonic Drill Rig

Geomechanics purchased the R7-million Sonic SDC 450-24 drill rig through Canada-based Sonic Drill Corporation. The rig arrived at the company's Lanseria facility on February 22.

This rig bores between three to five times faster than conventional drill rigs – depending on soil conditions – without using any drilling mud. It can also provide continuous core samples of up to eight inches in diameter at depths of up to 200 m. As a result, sonic drilling can be used in many applications including geotechnical and geothermal projects, environmental investigations and mineral exploration.

The Sonic SDC 450-24 weighs 11 t, has a mast length of 24 ft and runs on a rubber-track assembly.

It comes standard with mud pump, remote tramming and on-board rod rack assembly.

The rig has a Sonicor 50K drill head that sends high-frequency mechanical oscillations down the drill string to the bit. The operator controls frequencies to suit the specific conditions of soil or rock geology. High-frequency vibrations fluidise the soil particles at the bit face, enabling fast and easy penetration in most geological formations, including boulders and bedrock.

Further, with a sonic drill, there are fewer consumables required to produce core. Unlike in diamond drilling, sonic drilling does not require drilling mud to lubricate the rotating bit to cut the rock or spin the core

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barrel, as it fluidises the soil through vibrations. It does, however, require water to install the drill rig casings.

The life of the bit on a sonic drill rig depends entirely on the ground conditions. While sonic drilling is better suited to softer ground conditions, it can undertake hard-rock drilling if hard-rock conditions form part of the drilling operation.

Geomechanics will primarily use the Sonic SDC 450-24 to engage softer formations, such as mineral sands and minerals contained in weathered and friable materials, which are more difficult to core drill.

Multipurpose Drill Rig

The R1.7-million multipurpose conventional DeltaBase 525 DB rig, manufactured in Poland by integrated exploration drilling products and services provider Boart Longyear, was shipped to South Africa and delivered to Geomechanics in January.

Upon arrival, the rig was immediately tested at the Geo-Group facility, in Lanseria, whereafter it was dispatched to a site in Durban, where it is being used to conduct a large geotechnical survey.

The DeltaBase 525 DB rig performs the same functions as a conventional geotechnical drill rig, but at twice the speed, says Rossiter.

The rig can drill to depths of up to 310 m when using B-size drill rods and up to 175 m of H-size drill rods when used for rotary core drilling and is capable of augering using a 10 inch diameter bit.

It can also undertake down-the-hole (DTH) drilling up to 290 m.

The rig features up to 5.5 t of pull-back while the rotary head has 6 540 Nm of torque and can handle drill rods of 6 m long.

The 6 t DeltaBase 525 DB has been manufactured specially with additional features to suit the needs of Geomechanics. It includes a faster rotation of up to 800 rpm, a larger mud pump and a more powerful 72 kW Deutz motor, instead of the conventional 53 kW motor.

Geomechanics continually upgrades its technology, replaces its old equipment with new equipment and operates a 4 000 m^2 in-house facility for the maintenance and construction of new rigs.

Rossiter says maintenance is a crucial aspect to running a fleet of machinery. "It is all very well having many rigs, but unless you can maintain the rigs properly, they will not last long."

Having worked in countries including Angola, Botswana, the Democratic Republic of Congo, Kenya, Lesotho, Liberia, Madagascar, Namibia, South Africa, Swaziland and Tanzania, as well as having conducted extensive work in Malawi and Mozambique in the past few years, Geomechanics has about eight exploration, grouting, piling and geotechnical projects under way in South Africa, most of which are ongoing contracts.

SONIC SDC 450-24
The rig bores between three and five times faster than conventional drill rigs, depending on soil conditions, and provides continuous core samples of up to eight inches in diameter at depths of up to 200 m

To watch a video of the Sonic SDC 450-24 rig drill between three to five times faster than conventional drill rigs, scan the barcode with TagReader (at www.gettag.mobi) on your cellphone, or go to 'Video Clips' on www.miningweekly.com

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