



sandstone. The quarry is owned and operated by a local company, Donskoy Kamen, while a subcontractor, Yugvzrivprom, performed the blasting work.

Donskoy Kamen has experienced problems with its fleet of drill rigs on the sandstone at the quarry. Its abrasiveness places greater demands on the rock tools, and uses more rig power leading to excessive use of fuel.

When the drilling tests began, the DP1500i was equipped with 102mm bits, and after 20 hours of intensive operation had drilled a total distance of 822m – double the performance previously experienced by Donskoy Kamen.

Next the drilling was performed with 127mm bits, with the DP1500i displaying a penetration rate of 1 to 1.1m/min. Finally, the engineers of Quarry Service installed 140mm drill bits and with this configuration the rig achieved a penetration rate of 0.7 to 0.8m/min.

Boart Longyear, which claims to be the world's leading provider of integrated drilling services and drilling products, has introduced the LS250 MiniSonic, a compact rig said to be suitable for a wide variety of environmental, geotechnical, water and mining projects.

Capable of drilling to depths of up to 78m when used with 121mm casing, the wide 600mm rubber tracks provide low ground pressure which the company said made it perfect for jobs in the most sensitive and fragile terrains. It added that its smaller footprint made it appropriate for projects with small drill pads, environmentally-sensitive areas or hard-to-reach sites. As it requires less support equipment, it makes it a low-cost solution for a variety of mining, environmental, geotechnical and infrastructure drilling projects, it said.

Greg Guillot, senior product manager for capital equipment, said, "Boart Longyear has had this sonic head in the field for 10 years, and its reliability is unmatched. That means more uptime and drilling hours between head maintenance, which results in lower operating costs and higher productivity."

The company said the rig provided a relatively undisturbed core sample "of unparalleled



The Sandvik DP1500i rig at the Fedorovskoye quarry in Russia

quality and accuracy through any type of formation, with minimal deviation".

It said that when using the iso-flow groundwater profiling system, hydrogeological and geochemical data could be easily obtained. Additionally, drilling with the LS250 MiniSonic reduces waste by up to 80%, it claimed, explaining that sonic drilling was faster than conventional overburden drilling methods and greatly reduced the risk of project failure as a result of unknown or difficult subsurface conditions.

Safety features of the rig are said to include an interlocked rotation barrier, reduced noise levels, a dump mast and wiggle tail, and a rod presenter. The interlocked rotation barrier automatically slows head rotation when the barrier is open. The LS250 MiniSonic provides lower noise levels when equipped with the Tier 4 Interim engine package.

Boart Longyear said the LS250 MiniSonic's articulated mast and wiggle tail enabled the mast to shift from left to right and front to back to position the mast precisely over the hole, eliminating time-consuming rig movements.

An innovative rod presenter is said to allow the rod and casing to be loaded horizontally, with an actuator that then presents the rod and casing vertically to the head. The head rotates 28° to the side for sample extraction, while the head slide shift allows for unobstructed winch use down the hole.

PERCUSSIVE

US-based Rockmore International, a manufacturer of percussive rock drilling tools whose European headquarters are in Austria, has recently launched the T series DTH hammer line and has introduced the first model in this class – the ROK 600T.

The new T series hammers use drill bits >

Initially, he had some concerns regarding the accuracy of the machinery performance data, as the formations in which the machine had previously been tested were unknown.

"However, during the test carried out at our facility, we were pleased to see that the performance was true to the data that had previously been reported.

"The Sandvik Ranger DX series hydraulic gun pressure and impact setting, the high drilling power despite low energy consumption and 60 to 65m/h drilling performance with fuel consumption of 22 to 23 litres/h, meaning that fuel consumption per metre was as low as 0.38, creates a significant advantage for us in terms of drilling costs."

Meanwhile, in Russia, a series of drilling demonstrations of the Sandvik DP1500i rig were recently performed at the Fedorovskoye quarry in the Rostov region. These were organized by Sandvik Construction Russia and distributor Quarry Service to measure the drill rig's performance on highly abrasive



Boart Longyear has introduced the LS250 MiniSonic compact rig



Minnich's pneumatic machine-mounted drills offer a self-contained solution for patchwork jobs

with standard shank connections that no longer require plastic parts commonly known as blow tubes or foot valves. Rockmore said the elimination of this plastic part associated offered various technical and economical advantages.

Pejman Eghdami, executive vice president, said, "We recognised a trending demand in the DTH drilling sector for a high performance DTH tool that could use industry standard drill bits without plastic components in order to increase reliability yet not compromise drilling efficiency."

The T series stands for "tubeless", and the company said that although the "tubeless" DTH hammer had been offered before, drilling performance had often been compromised when designed to operate with an industry standard bit shank. In addition, it said that while other manufacturers had introduced



John Deere powered drills

Italian drill rig manufacturer Fraste's latest MRS-XL-MAX Midrotosonic crawler rig has been developed for geotechnical drilling – specifically, to extract high-quality soil samples quickly and efficiently from depths of up to 60m.

Fraste's CRS XL platform was upgraded to power an LS50K Sonic drill head, developed by Dutch partner SonicSampDrill. The simultaneous vibration and rotation of the LS50K sonic drill head ensure the penetration speed of 45m/min, even in harder soil.

Despite the unit's compact size, it boasts considerable power, provided by a John Deere PowerTech 6.8L 184kW engine.

Benito Fracca, managing director of Fraste, said, "To reach the global market, we included an Interim Tier 4/Stage III B 6.8L engine. It's feisty enough to power the LS50K Sonic drill head, but still compact, while its standardised configuration makes it easy to install."

Another company to use a John Deere engine is TM Bohrtechnik, an Austrian company which offers customised solutions for open pit and underground drilling applications.

CEO Fritz Krobath said, "We want to be an advisor, not a traffic director. That means we start from the desired result, then create a solution to achieve it.

"I believe in offering each customer a solution that is fully designed around them and/or their project. That is why our processes are focused on being innovative, flexible, and quick."

One of its latest solutions is the TMB10 surface drill. It is described as flexible, and thanks to a large and sturdy hydraulic drifter (a percussive top-head device), overburden drilling and drilling of large anchors is possible. It has an articulated boom and can rotate 360°.

TM Bohrtechnik selected a John Deere PowerTech PVX 6.8L Interim Tier 4/Stage III B engine for the TMB10.

DTH hammers that used bits without a plastic component, such DTH bits were proprietary in design, which limited their availability.

"With our emerging T class DTH hammers, we are offering the drilling community a balanced solution of improved reliability without compromising any drilling performance," said Eghdami. "And impressively, we have achieved this by incorporating standard industry shank connections into the overall design concept."

The company said there were clear economic advantages by eliminating the plastic components from the bit shank section. It said blow tube/foot valve breakages on DTH bits during drilling operations were catastrophic, since the hammer would cease to function immediately. This is particularly damaging to drill time efficiency if such interruptions occur in deep-hole applications, requiring the hammer to be retrieved out of the hole for bit replacement, it said.

The ROK 600T is a 6in class model with high performance drilling characteristics rated for drilling 155mm to 178mm diameter

The TMB10 surface drill has an articulated boom



Fraste for extracting high-quality soil samples



holes for blast hole applications in mining and construction. It is also said to be suitable for water well drilling, since it exhibits good in-hole flushing which is necessary to evacuate rock chips in deep applications.

Another US company, E-Z Drill, said its pneumatic 210 3-parapet wall drill maximised productivity while drilling vertical holes for a variety of concrete applications, giving such examples as securing temporary protective walls along shoulders of bridges and roadways; anchoring temporary traffic barriers; and more unusual applications such as maintaining concrete seawalls.

The 3-parapet wall drill is said to ensure continuous operations and optimal uptime with features like E-Z Drill's patented roller-bearing feed system, which powers each drill automatically with individually tailored air pressure according to the material it is used on. This is claimed to extend the service life of the drill bit because it helps prevent the bit from bouncing against the concrete as a result of inadequate pressure.

It said the multi-point oil injection system reduced wear on the drill motors by ensuring each drill motor had enough lubricating oil from its single reservoir. The company claimed this was more effective than a central oiling system, which doesn't offer individual lubrication points. Quick release bit guides can accommodate several bit styles, including one-piece whirl bits, two-piece H-thread bits and taper steel bits.

The 3-gang parapet wall drill is self-propelled, so the operator can use a lever to move it along the parapet wall rather than pushing it manually. The drill's two pneumatic wheels support the unit's quick repositioning capabilities, the company said, which eliminates the time-consuming process of manually levelling and repositioning it after each movement. An optional dust collection system can be attached to the drill.

Minnich Manufacturing's series of machine-mounted drills is now available with a number of features said to have been engineered to increase safety and productivity in dowel-pin



The Silver Bullet from Torquato

drilling applications, and are available in both hydraulic and pneumatic options.

Primarily used for full-depth repair, or patchwork, Minnich Manufacturing offers excavator/backhoe/skid steer-mounted units that it claimed were ideal for horizontal patchwork jobs with a relatively long distance between the areas to be drilled. It added that apart from increased portability, the dowel pin drills were also a safe alternative for operators, eliminating fatigue by using the carrier to transport the drill.

Minnich's pneumatic machine-mounted drills are powered by a compressor, mounted to the counter-weight of the carrier or in the bucket of a backhoe, offering a self-contained solution for patchwork jobs.

UK company, Padley & Venables (P&V), has launched the Ninja bit range. Marketing services officer Glyn Storey said the bits had been designed in-house, and led to faster, straighter holes.

The Ninja button bit is said to be suitable for most hard rock, top hammer drilling applications. It is available in sizes from 48mm to 64mm. P&V said the distinct angled face grooves and deeper lateral flushing flutes aided rock removal from the bit face, increasing drilling speed.

The open face design of the bit is said to allow rock to fall into the void between the three face tips before being crushed. The company said this added directional stability and helped create a straighter hole. This was said to reduce bending stresses on the rods, shanks and couplings, reducing breakages and overall drill steel consumption.

P&V has tested its new products in Norway, Spain, Portugal and Australia.

Another manufacturer, Torquato Drilling Accessories, designs and manufactures a wide range of high speed Silver Bullet PDC bits and reamers for horizontal directional drilling.

President Tony Torquato said that Silver Bullet PDC bits drilled 140mm and 165mm pilot holes considerably faster than roller cone bits in consolidated rock such as sandstone, limestone and shale.

"Our HDD PDC Reamers are available in sizes up to 660mm diameter for smooth and efficient reaming," he said.

Skelair's flexible offering

UK-based ground engineering and rock drilling specialist Skelair International has seen the most recent addition to its fleet, the Baby Giraffa, complete its first commission.

Manufactured by Marini, and playing on the rig's strengths of being highly flexible and lightweight once set-up in DTH drilling mode, the Baby Giraffa was tasked with drilling 100mm holes from 3m to 6m deep in an area where the access was limited.

Skelair's rental programme already provides access to tracked drilling rigs and excavator mounted drill masts from Klemm, McDrill, Marini and TEI.

John Mayo, managing director of Skelair, said, "As a company, it's important that we are able to respond to our clients' needs with the right equipment exactly when they need it. We're lucky to own one of only two Marini Baby Giraffa's in the UK, and have received many enquiries since its launch."

Skelair recently added two new Klemm KR702-2 rigs – with a more powerful PP115F wheeled power pack – to its rental fleet.

Sales director Chris Neighbour said, "The two rigs were purchased due to the demand we find for this size and type of high-quality reliable rigs. Generally speaking the Klemm KR702-2 is used when high-powered mini-piling rigs are needed in tight spaces. These machines are great for restrictive access sites and basement works – which is hugely popular in London at present."



Skelair has added two new Klemm rigs