

## Time for an upgrade

After a year of design, testing and consultation with its customers, Dando Drilling International has re-engineered its Terrier site-investigation rig, launching the Terrier Mk2

**T**he story behind this reimagining of Dando Drilling International's Terrier rig stretches back over a decade, when the original design was given its first coat of post-box red paint, chosen as a reference to the rig's British roots. No one was sure whether the little machine would be well received or not.

"Shell-and-auger drillers are a rare breed," explains Dando sales account manager Callum Mee. "They are often experts with their method and know their equipment and technique inside out. They take enormous pride in achieving results with what many would consider fairly agricultural equipment.

"The Terrier design took the basic premise of the shell-and-

auger rig and miniaturised it on a tiny 800mm-wide crawler, using an automatic trip-hammer to simultaneously drive the sampling tools and casing into the ground.

"The unit was far removed from the A-frame supported cable-percussion

rigs that the shell-and-auger drillers were used to. There was definitely a risk that drillers might not take to it."

As it turned out, the Terrier was a success.

Drillers ▶

*The Dando Terrier Mk2 is available in a standard 800mm width (black rig pictured) or in a widened 1000mm version (red rig)*







The trip hammer can swing aside in any position, allowing the multiple rod pull-out mechanism to safely trip up to seven lengths of rod at a time quickly realised that for site investigation and environmental testing requiring shallow holes in the 0-20m range, the added manoeuvrability and safety that the rig offered over conventional cable-percussion rigs made it a valuable addition to their equipment.

Over the following decade, the rig was improved on and a number of variations developed. These included an interchangeable rotary mast that could be swapped out with the standard percussive mast, an angle-drilling rotary version of the rig for mineral exploration, and a dual-mast version with both percussive and rotary masts mounted side by side to facilitate a number of different drilling methods in the same borehole.



The new trip hammer employs a split weight design, allowing 63.5kg or 50kg options and features an automatic cut-off

Even the wider tracked 100mm version of the Terrier Mk2 can manoeuvre in limited-access areas and be loaded onto any good quality four-wheel trailer

### THE NEW MODEL

"We felt that we had taken the original design as far as we could," explains Mee. "We have an excellent design team at present, and two of our newer members saw the rig from a fresh perspective and were excited to change the fundamental design in a way that would allow functionality that the original couldn't accommodate."

The design brief was to take the Terrier's best features – small, nimble, safe, versatile, fast and simple to operate and maintain – and improve on them. A year of dedicated design, prototyping

and testing later, and the Terrier Mk2 is now in production.

The mast on the new rig has a number of developments. A 300mm hydraulic dump allows the mast to be raised and lowered as required and means that the rig can be tracked to a new drill location with the mast erect.

Dean Johnson of DJ Drilling, which recently purchased a Terrier Mk2, comments on the advantage this has already given to his team: "Much of our work with the Terrier is for large numbers of shallow holes. With the mast dump, we can now raise the foot of the mast and track straight over the previous borehole to the new location and start loading rods immediately."

The mast is of steel construction and has a 1.3m stroke to load 1m equipment. It supports a trip hammer designed to swing out from the drill line at any height. This feature provides easier tool handling and installation of casing, or use of downhole instrumentation, without the need to adjust the rig's position.

It also facilitates one of the most noticeable time-saving features by allowing multiple sections of rod to be tripped at once. A swing-out pullback ring provides open access to the borehole and, along with a stainless-steel rod guide, means that multiple rods can be safely pulled out before removal, saving time and increasing the number of boreholes that can be drilled per shift.

The percussive hammer itself is capable of up to 50 blows per minute along its full drop height. This provides for great penetration rates when sampling. A split weight design allows the standard

63.5kg drop weight to be reduced to 50kg and the drop height from 760mm to 500mm with a simple adjustment and no additional brackets. The trip hammer itself has an auto-stop feature built in so that operation ceases when it reaches the foot of the mast.

Johnson notes: "It allows us to step away from the levers while the hammer is driving the sample and do other things. When the trip hammer reaches the bottom of the stroke, it kicks out and stops."

The automatic cut-off also provides safety in situations such as voids in the geology, where the trip hammer may suddenly drop to the foot of the mast and cause damage to the rig.

Dando engineer Rupert Coler, who was heavily involved with developing the Terrier Mk2, comments on the safety considerations that influenced his design: "Everything conforms to the latest EU and UK drilling industry standards. The auto-stop prevents the hammer mechanism from tripping in the event that guards are opened or if the hammer unit is swung aside. The console has also been redesigned to allow for clear sighting of the borehole while drilling, and the ergonomic controls ensure the rig is simple to use."

As per the original Terrier rig, the deck can be raised and tilted on hydraulic rams so that drilling can be carried out on slopes of up to 30° while maintaining a vertical mast position. Raising the deck also allows for easy access to the hydraulic systems mounted below when servicing is required.

The standard Terrier Mk2 is mounted on an 800mm crawler; however, a wider 1,000mm carrier is offered along with a number of other options, including hydraulic stabilisers and foot clamps, radio remote control, an SPT blow counter, a remote mast kit that allows drilling to take place at distance from the base unit, and a selection of engine sizes.♥



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