

Singing a new tone

Right: Toa-Tone Boring SD-175 sonic drill.
Far right: the new SD-125 drill was demonstrated to domestic and overseas clients in January

Japanese drill rig and equipment manufacturer Toa-Tone Boring, which launched the new SD-125 high-frequency vibratory-rotary drill earlier this year, answers GDI's questions about its sonic range

Q What sonic drilling equipment do you provide?

We provide a range of sonic models, including the SD-100, SD-125, SD-150, SD-175 and SD-200, and 4½, 6½, 8½, 10½

and 12¾in drill tools. In addition, we recently developed and started selling a wireline system for sampling with sonic drill rigs.

Q What applications are your sonic rigs mainly used for?

Our sonic drill rigs are widely used for underground geothermal hole drilling in the Japanese market.

Among the reasons for the expansion of this market is that, after a big earthquake hit north Japan in 2011, all nuclear power plants in the country were shut down. Consequently, the Japanese government and people immediately expressed serious concerns regarding energy saving. Subsidies from the



government, with a fixed time-frame, can be allocated for the construction and utilisation of underground geothermal energy.

Q What products are proving popular choices right now?

The SD-125 and SD-175 models are, due to the lightweight and compact design and a more

New SD-125 sonic rig

Main technical features:

- Engine output: 126PS
- Feed/balance capacity: 68.6kN
- Max. rotating torque: 5.88kNm
- Drilling capacity in normal soil conditions: 100-120m using 6½in (16.8cm) drill casing

The SD-125 drill model has a bigger feed capacity than the SD-100. Its lightweight and compact design means drilling and moving to and from job sites with limited space is easier.

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Still sonic

US supplier of drilling tools Hole Products discusses its sonic background and equipment



powerful vibration force for better drilling performance, respectively.

The demand for sonic drills for underground geothermal energy has been very strong, and we expect the demand for foundation-engineering machinery, such as diaphragm wall trenchers and foundation pile drills, will grow for the rest of the year.

Q Where has the new SD-125 been tested so far?

Thorough tests have been carried out at our Enzan factory in Yamanashi Prefecture. In January, the SD-125 drill was demonstrated to domestic and overseas clients. The geological conditions at the site consisted of alternating formations with gravel and large boulders, where conventional rotary drilling would have been hard. The higher drilling performance and low noise of the SD-125 drill in operation impressed the attendees.

Q Is Toa-Tone Boring working on other developments?

To advance environmental sustainability and reduce operating costs of sonic drilling, we are planning to research and develop the automation and suppression of noise of sonic drill operation.

Q Have you witnessed any new trends?

In Japan, some major foundation contractors are studying further application of sonic technology in the foundation field due to these performance features:

1. Wider application for a variety of geological condition
2. High drilling speed
3. High vertical accuracy

In future, we will aim to evolve the applicable range of sonic technology in co-operation with these foundation contractors. ▼

BIRTH OF SONIX

With Brad's background in sonic drilling, the company's entrance into the sonic tooling market was a natural one. Hole Products aimed to develop a line of tooling that would withstand the rigorous demands unique to sonic drilling, and eventually launched Sonix.

The Sonix line of tooling includes everything a sonic-drilling operation needs: rods, casing, core barrels, bits, subs, flange adapters, breakout jaws, hoisting and fishing tools, water-sampling equipment and more. All tooling is available with a variety of thread patterns to adapt to existing tooling and fit the heads of all leading sonic rig manufacturers.

Some of the advancements within Sonix include a line of heavy-duty (HD) rods and casing. Whereas standard rods feature a plain end mid-body inertia-welded to 4140 QT tool joints, HD rods feature an internally upset mid-body, which increases the weld area by over 50%, increasing the strength of the weld.

Standard-duty casing is a parallel-wall casing manufactured from one-piece alloy tubing, while the HD is three-piece inertia-welded casing featuring premium 4140 tool joints inertia-welded to a parallel-wall mid body.

Heat-treating the weld zone and removing the internal flash finishes off the HD casing, ensuring a tough casing that can stand the test of time in even the most demanding sonic-drilling applications.

On top of the advancements made to rods and casing, Hole develops custom bits to meet the ever-changing downhole conditions encountered by its clients.

Advancements are continually being made to the smallest parts. Redesigned breakout jaws have been proven to increase both gripping ability and jaw life.

Small changes to retainer basket bits to allow a tighter fit between the core barrel and bit help to keep the catcher in place and accept the lexan liner easier. ▼



Hole Products offers a wide range of configurations of Sonix casing and core barrel bits for drilling in various soil conditions

"Hole Products aimed to develop a line of tooling that would withstand the rigorous demands unique to sonic drilling, and eventually launched Sonix"