



The Sonic-Neo model has been tested in the Yamanashi Pref. and Ibaraki Pref. of Japan

The new sonic

Drilling equipment manufacturer Toa-Tone Boring, headquartered in Tokyo, Japan, has released the Sonic-Neo, a new-generation sonic rig with recently developed noise-reducing technology and automated functions

Toa-Tone Boring's Sonic-Neo rig, which was officially launched in June 2017, was created as the result of a project by the New Energy and Industrial Technology Development Organization (NEDO).

It was designed for the installation of geothermal/ground-source heat exchange systems, with a maximum drilling depth of 100m. The aim was also to contribute to the reduction of the systems' installation costs.

While NEDO subsidised two-thirds of the machine's development costs, Toa-Tone Boring owns its intellectual property rights.

As one of its main design features, the Sonic-Neo



The sonic technology is under license from Sonic Drill Corp



The company's sonic range also includes the Super-Probe and Eco-Probe models produces less noise during operation when compared with other sonic models, which makes it particularly suited for use in urban and residential areas.

The idea behind the model was to maximise the performance of the sonic technology (under license from Canadian Sonic Drill Corp) while working on sites with strict noise restrictions, Yuichi Ikeda of Toa-Tone Boring's

Toa-Tone Boring sonic drills

In addition to the original Tone-Sonic and the new Sonic-Neo rigs, the company's sonic range includes the Super-Probe and Eco-Probe models.

These compact machines are capable of high-speed sampling to collect undisturbed samples without the use of circulation fluid.

Furthermore, they can drill a monitoring well at the same time with the dual-tube method.

About NEDO

Following the two oil crises of the 1970s, the need for energy diversification increased in Japan. Against this backdrop, the New Energy and Industrial Technology Development Organization (NEDO) was established as a governmental organisation in 1980 to promote the development and introduction of new energy technologies. Research and development of industrial technology was later added, and today NEDO is active in a wide variety of areas as one of the largest public research and development management organisations in the country.

international division tells GDI.

"Most sites in cities and quiet residential areas have strict regulations, and then rigs have to be used with limited power," he describes the usual circumstances.

EVOLVING TECHNOLOGY

The Sonic-Neo is also equipped with an automated rod-handling set-up, meaning drill rods don't have to be manually connected/disconnected or loaded/unloaded onto or from the rod rack.

This functionality reduces the number of workers needed to operate the rig.

In addition to boosting safety, this can reduce the installation cost of a geothermal heat exchange system.

Toa-Tone Boring has also confirmed that it is continuing

its research into automation, machine learning and artificial intelligence (AI).

The company's aim is to ultimately offer a sonic drill that is operated by AI, and that could gather data on geological layers and control functions such as rotation speed, torque, feed speed, frequency and the mud pump, among other features.

In fact, these developments might be needed sooner rather than later, as Japan's decreasing population means that, by 2025, citizens aged 65 years or older will make up 30% of the population.

This is naturally also having an effect on the drilling sector, as the aging workforce heads towards retirement, creating a growing shortage of experienced drillers. ▽

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