

Geothermal power in the Kosovo 50 drills finished on time (125 m/415 ft deep)



In Malisheva, Kosovo a new modern schoolhouse had to be constructed to the highest environmental standards in a project financed jointly by Norway and Kosovo. The heating system utilised environmentally friendly geothermal power instead of oil or gas.

This entailed the drilling of 50 vertical bores with a diameter of 150 mm (6"). Each bore was 125 m (415 ft) deep. Heat sondes were slid into these vertical bores to harness the "free" geothermal energy. The ground consisted predominantly of hard rock. Drilling equipment therefore needed to be extremely efficient as well as light and easily manoeuvrable due to the large number of bores required. The contractor NNE Nartel of Prishtina was the main contractor and undertook the project on a turnkey basis. Nartel decided to purchase a TERRA-DRILL 4407 V as this vertical drill was considered ideal for the requirements of this construction project. It is powerful and productive as well as being easily manoeuvrable.

NNE Nartel is one of the largest contractors in Kosovo with 150-160 workers as well as having a well run engineering office with 50 engineers and architects. It was founded in 1981 and changed the company's name after the conclusion of the war in 1999 into Nartel. Mr. Gani Mehmeti is the founder and owner of this successful company, which is mostly active in building construction.



The project and its fathers. The modern schoolbuilding was financed by Norway and the Kosovo.



↑ The contractor Nartel was responsible for the hole project, either for the school building or for the heat pump with the 50 vertical bars.

↑ The school building from the other side.

→ The rock bottom began in a depth of 0.5 m – 8 m (2 – 28 ft.) the casing pipes were drilled down only for 1-9 m (3 – 30 ft).





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The TERRA-JET 4407 V is unloaded with the crane. It weighs only 1.8 tonnes (4000 lbs). ↓



The installation of the first bore commenced at eight o'clock in the morning using the TERRA-DRILL.

Soft collapsible material was encountered from the surface down to 2m depth, whilst from 2m depth hard rock was encountered, which became softer and softer as the depth increased.

Casing pipes of 178mm OD (7") were inserted for the first 3 metres to support the collapsible material, and thereafter the bayonet connection of the duplex connector was disconnected which allowed the 5" DTH hammer with the 150 mm (6") drill bit to continue alone, until the final depth was reached.

The 125 m (400 ft) deep bore was drilled with a speed of 12-18 m (40-60 ft) per hour. The heat sonde 4x OD 32 mm (1.25") with 25 mm (1") filler pipe was prepared and lowered down. Then the bore cavity was refilled. The first bore was completed in a day and a half.

For the remaining works, 4 to 5 vertical bores were planned per week to ensure the first geothermal power project in the Kosovo would be finished on time.





↑ The air compressor of Ingersoll Rand produces
21.5 m³/min @ 21 bar (750 cfm @ 300 psi).



View at the first 15 successful bores. The first 15 heat sondes look out of the ground.

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