

Down the Hole Performance

A method to get through the rock was lacking in the early days of directional drilling. The development and use of DTH hammer technology has made it easier to access water supplies in hard rock.

DTH drilling use a rotary percussive movement. The combination of rotation and percussion helps the drill achieve a rotary (cutting and grinding) action at the same time as a percussive (chipping) action.

What makes the DTH systems unique is that the air conversion usually takes place in the field. A hole is formed when compressed air is transmitted pneumatically through the drill rod to the drill bit, prompting it to thrust into the formation using a repeated hammering motion. As the high-pressure air passes through the hammer with the button bit pressed against the face of the rock, the piston will hit the back of the bit forcing the bit into the rock. The air then passes through the end of the bit removing the rock cuttings back through the bore hole to atmospheric air pressure. DTH is unique in that the more air pressure the hammer can hold, the faster the penetration rate.

A recent water-well drilling project in the Fiji islands required the drilling contractor-Rock drillers Fiji- to dig 6.5 inches bore wells at a depth of 350-450 ft. Rock drillers decided on the Elgi rig compressor because of its efficiency, reliability and fuel economy. The two-stage high pressure air compressor provided an air flow of 1100 cfm at a pressure of 300 psi for faster drilling. The compressor ensured that the DTH hammer performed to its high standards.

Elgi makes a range of diesel –powered skid and trolley mounted compressors for different combinations of bore diameter and depth of water wells. With its range of compressors from 475 – 1200 cfm/ 150-350 psi, the company caters to various needs of water-well drilling segment in countries such as South-East Asia, South Africa and Australia. Its expertise in the highly demanding water- well drilling application in a variety of difficult strata has enabled the company to tropicalise the compressors at full load conditions. The company is the market leader in diesel powered screw compressor segment, with 80% of the total market share for rig compressors, in India.



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