

Measurement System for Groundwater Inflow Rate and Pressure in Advanced Boring —T-DrillPacker®—

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Outline

To ensure the safety and workability of mountain tunnel construction projects where large amounts of water inflow occur, it is important to know in advance the status of the water inflow in front of the face. T-DrillPacker is a new survey technology that can quickly and reliably measure the amount of water inflow and water pressure without having to pull out the borehole pipe after identifying the location of water inflow using advanced boring techniques.

Process

Drilling is performed with a double bit with an outer bit on the outside and an inner bit on the inside. When measuring water inflow, only the inner bit is recovered at high speed using the wireline method, and the packer is inserted from inside the outer bit. A large expansion packer that expands from the inner diameter of the outer bit to the hole wall is used.

Features

- 1) Measurement time can be reduced by 20% compared to the conventional method because the drilled pipe is not collected.
- 2) The drilled hole pipe plays the role of protecting the borehole wall, enabling reliable surveys without the risk of borehole wall collapse.
- 3) Drilling can be easily continued by retrieving the packer, pumping the inner bit with water, and re-setting it.
- 4) By changing the double bit to a bit for core sampling, it can also be applied to core boring.

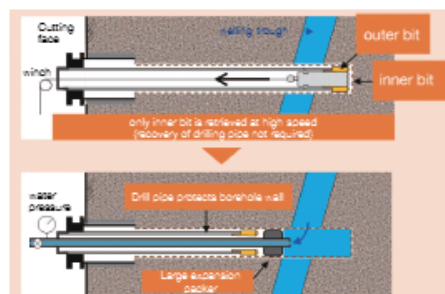


Fig. 1 Method of Measurement



Fig. 2 Bit and Large Expansion Packer