



BOREHOLE MAGNETIC RESONANCE (BMR) TOOL

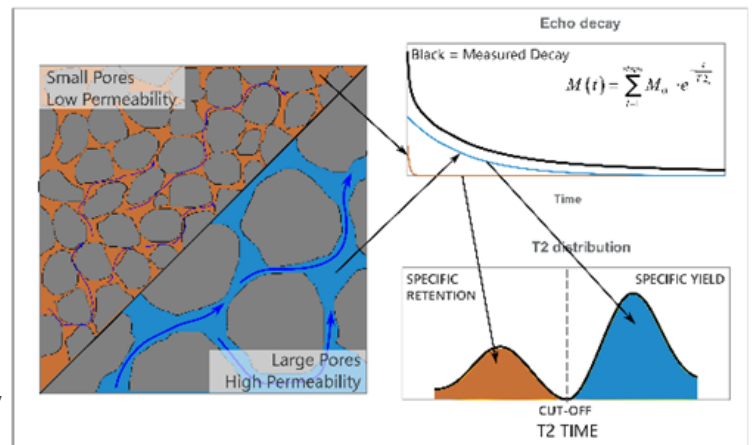
Tool overview

These tools measure the amount of water present in the pore space using permanent magnets and antenna, similar to an MRI machine in a hospital. The lithology independent techniques results in water (moisture) content above the water table and total porosity and pore size distribution below the water table. BMR can provide secondary measurements such as specific yield (amount of moveable water) and specific retention (amount of bound water) as well as calculate estimates for hydraulic conductivity with additional information. The tool can measure through PVC, fiberglass or open hole conditions in dry or water filled boreholes and can be used in a range of sectors from hydrogeology to mining.

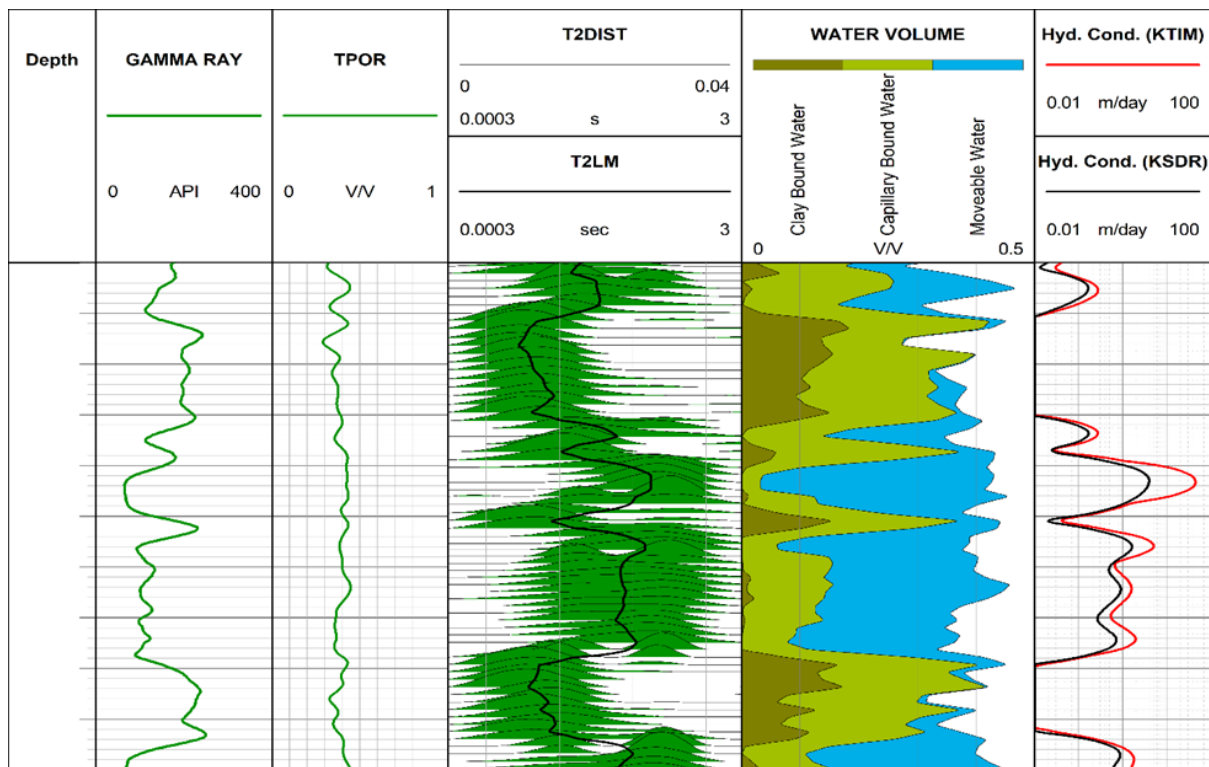


Features and benefits

- Lithology independent measurement of water content/total porosity and pore size distribution
- Lithology dependent measurements such as moveable and bound porosity and hydraulic conductivity/permeability
- As part of an integrated logging solution, BMR can combine with other logs in Geotechnical, Hydrogeology, Mining and Geothermal applications
- Completely safe-no chemical sources or radiation



The total BMR measured echo delay is the sum of the contribution from a range of different pores in the measured region. The inversion process to T2 time solves for the amount of porosity associated with a particular T2-time, resulting in the pore size (T2) distribution



Standard BMR log output. From the left, Track 1 contains a gamma ray curve, typically run with the BMR tool for depth control. Track 2 contains the lithology-independent total BMR porosity (TPOR). Track 3 contains measured T2 distribution as well as the logarithmic mean T2 value. Track 4 contains volumes of clay bound water, and free fluid derived from the measured T2 distribution. Track 5 contains hydraulic conductivity estimates using both the Timur-Coates and the SDR permeability equations.

Specifications	QL40-BMR-60	QL40-BMR-90
Tool size	210 x 60mm	2160 x 90mm
Tool weight	19.7kg	26kg
Max. Pressure	200 bar	200 bar
Max Temperature	80°C	80°C
Hole sizes	75-186mm	122-312mm
Borehole Condition	Open hole, Fibreglass, PVC casing Dry or fluid filled	
Logging Condition	0.5 to 1.1 metre/min. Free running	

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