



Boretraking is a borehole deviation measurement service for quickly and accurately auditing and improving drilling results. This service will prevent operational, environmental and safety issues, especially in open pit mining, quarrying and civil works, likely due to incorrect setting of drill angles, borehole deviation or wrong drilling depth. It is also useful in UG mining production blasts.

APPLICATIONS

✕	Open pit
✕	Civil construction
✕	Underground
✕	Quarry

BENEFITS

Safety and Environmental: Avoid air overpressure and flyrocks. With the combination of 3D laser profiling, it is possible to identify any possible lack of rock in front row, due to drilling deviation.



Blast optimization: Blast plan definition using actual borehole data. Drilled boreholes not always match designed drilling plan. Boretraking service allows performing blast plan taking into account borehole deviation, accomplishing corrective actions.

Drilling audit: Reduces risk and improve drilling. With Boretraking, any issue in drilling activity can be easily detected and corrected

EQUIPMENT

Different brands and even technologies can be used: rod and cable Boretrak Systems are the most popular equipment in MAXAM.

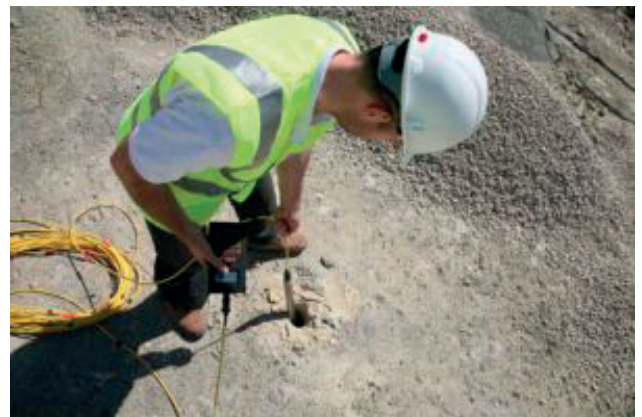
Sensor:

- ✕ Range $-/+ 45^\circ$ (from vertical, up or down)
- ✕ Accuracy: 0.10°
- ✕ Resolution: 0.01°
- ✕ Diameter: 55 mm.
- ✕ Water resistant.

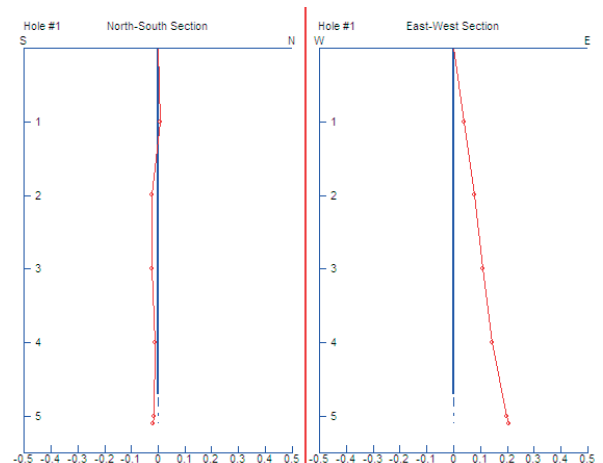
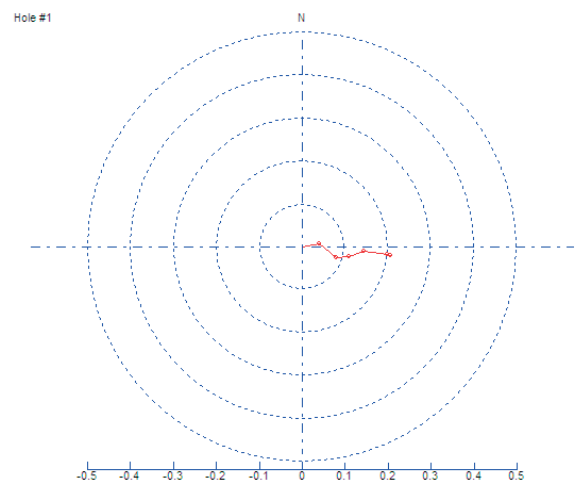
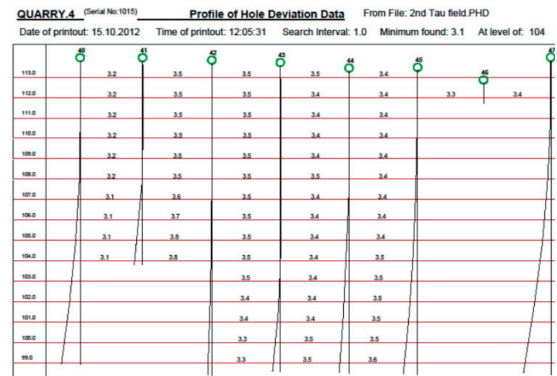
CDU:

- ✕ LCD: 4 lines/20 characters per line.
- ✕ Memory: 8kB.
- ✕ Data download: RS232, 9600 Baud rate
- ✕ Power: rechargeable
- ✕ Size (LxWxH): 242x102x41 mm / 9.5x4.0x1.6 in.
- ✕ Weight: 800g / 28.2 Operating temperature -10°C to $+45^\circ\text{C}$.
- ✕ Water and dust resistance (IP63).

Cable probe. Applications in non-magnetic rocks.



Rodded probe. Application in magnetic rocks and up-holes in underground mining.



METHODOLOGY

In order to get the best results, it is necessary to follow a step by step procedure of work in Boretraking:

- ✗ Obtain actual-Free Face data (2D or 3D laser profiling).
- ✗ Adaptation of the drilling plan to the real free face shape.
- ✗ Mark the drilling pattern adjusting the 1st and 2nd rows (or more rows, if necessary)
- ✗ After drilling the hole, proceed to the deviations measurement (with Boretrak)
- ✗ Complete the loading and firing plan.
- ✗ Perform the blast and results evaluation.
- ✗ Export the data to RIOBLAST® (Blast design software and implement improvements for the following blasts).

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