3D LASER PROFILING

Measurement and Control

TAP Technical Applications Services

3D laser profiling analysis makes it possible to measure real free face data and create 3D images to conduct a total free face evaluation. This can give immediate solutions to improve fragmentation and avoid safety and environmental problems.

APPLICATIONS

- Open pit
- Civil construction
- Underground
- Quarry

BENEFITS

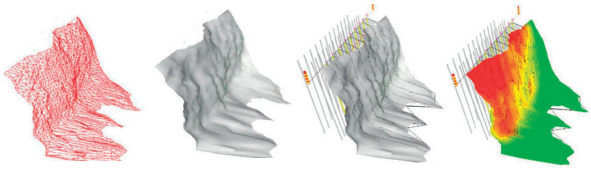
3D laser profiling is the most accurate way to define blast geometry –free face and borehole position- that will help assure for the best blast performance results.

Real measurement:

- Vertical height bench, to define borehole length and blast compatibility.
- First row position, real distance between the bench crest and hole.
- Bench angle, theoretical borehole definition.
- Toe, in order to define the subdrilling, bottom charge or density loading.
- Distances (Burden, Spacing)
- Real volume.

Safety

- Burden colour codes.
- Fly rock control, adjusting explosive charge to the real burden along the bench height.
- Adequate explosive charge determination according to minimum/maximum burden.



Blast optimization

- Blast profiling.
- Free face global evaluation.
- Borehole marking.

Environment

- Noise reduction due to gas confinement
- Vibration control, by defining real toe and the adequate blast pattern to assure for breakage and displacement.

EQUIPMENT

Different 3D equipment brands and even technologies can be used. Quarryman Pro and Pulsar 3D are standard equipment in MAXAM.

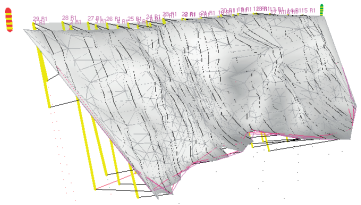
- Measure range with reflector up to 600 meters.
- Angular encoder accuracy: 0.02º
- Angular encoder resolution: 0.01º
- Accuracy: 5cm
- Automated scan rate: 250points/second
- Operating temperature -10ºC to +45ºC
- Water and dust resistance (IP63)

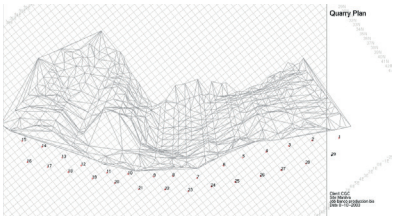
METHODOLOGY

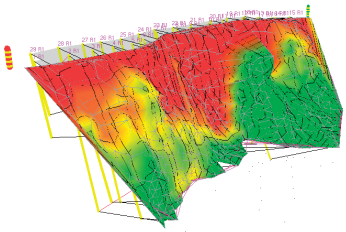
In order to get the best results, it is necessary to follow a step by step work procedure while doing 3D laser profiling.

- Definition of the area to be blasted.
- Location of reference points in the upper part of the blast.
- Selection of the scanning position, according to the size of the blast/free face.
- Scanning of the free face; special attention to singular areas that would require more accurate scanning.
- Drilling plan adaptation to the real free face.
- Mark the drilling pattern and adjust the 1st row.
- Measure actual drilling pattern using 3D laser.

As an addition to the data obtained in the quarry/ mine, it is possible to download the information to specific software such as MAXAM´s –RIOBLAST allowing the analysis of borehole profiles in detail.







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