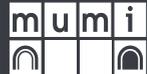


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BLASTING SOLUTIONS THE INITIATOR SYSTEM

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The introduction of electronic initiator systems for blast work at the end of the 1980s opened up a new world of safer, more precise and flexible possibilities in terms of defining delay times and initiation sequences.

Technological developments in this area now focus on obtaining ideal initiation times and sequences in order to improve fragmentation and swelling of the debris pile; reducing vibrations, wave area and projections; controlling dilution; and reducing slope damage, among others.

THE INITIATOR SYSTEM ELECTRONIC RIOTRONIC X

This system allows multiple blast holes to be loaded and programmed straightforwardly and safely thanks to bidirectional communication between the detonators, blaster and loggers, in order to:

- Allow individual programming of the delay for each detonator.
- Guarantee that checks can be carried out during blasting and from the firing point.
- Control the energy of each detonator up to the time of firing.
- Report any anomaly to the operator, identifying the type of incident and detonator involved.
- Prevent detonation by external energy sources.

RIOTRONIC X guarantees reliable programming and signal transmission, therefore producing blasts with higher levels of safety. Having full control over the detonation sequence makes it easier to supervise the blast safety procedure.

IDEAL SEQUENCING, THE NEW CHALLENGE

Many factors influence the choice of delay times and sequencing of a blast. Firstly, it is necessary to clearly establish the outcome to be achieved, such as resulting fragmentation curves, control of vibration levels or minimisation of dilution, among others. The blast conditions must then be studied, such as the type and composition of the material to be blasted, the quantity and location of the free faces, and the layout of the joint and fault planes, among others. Finally, the expert has to calculate the times and detonation sequence in order to achieve the goals set.

In this regard, precision and flexibility in the delay times allow extremely precise control of the different blast parameters and vibrations (with techniques such as analysis of elementary waves or optimisation of granulometric curves) or the mechanisms that determine the movement and shape of the debris pile, which is very important in controlling dilution.

It is therefore possible to increase the quality and degree of fragmentation achieved and minimise total energy consumption. Furthermore, in the case of dilution, applying electronic times allows total control of the movement of the material, separating the sterile areas from those containing ores and making it easier to recover them in the process.



Be sure to contact MAXAM if you would like to add value to your mining project by applying fragmentation optimization services.