

Abstract

BLAST SYSTEM AND METHOD USING COMBINED PATTERN OF ELECTRONIC AND NON-ELECTRIC DETONATORS

The present invention uses combined pattern of
5 electronic and non-electric detonators, which arranges
various pattern of electronic detonators and non-electric
detonators in cuts, stopping holes, contour holes and floor
holes and blasts the electronic detonators and the non-
electric detonators at an optimal delayed time, thereby
10 efficiently controlling over-break and vibration and
improving an tunnel advance rate.

A blast method using a combined pattern of electronic
detonators and non-electric detonators may include: a first
step of dividing a blast excavation area into a cut region,
15 a stopping region, a contour region, and a floor region; a
second step of arranging electronic detonators in the cut
region and the contour region, arranging non-electric
detonators in the stopping region and the floor region, and
connecting the electronic and non-electric detonators
20 through leading wires; a third step of setting a delay time
in consideration of a detonator delay time for each hole in
the divided regions of the blast excavation area and an
error range of the detonators; and a fourth step of
performing detonation according to the following sequence:

the cut region, the stopping region, the floor region, and the contour region.