

THE AUSTIN ADVANTAGE

EXPLOSIVE VOLUME
REDUCED BY 9% IN
SWEDISH MINE



GENERAL INFORMATION

Location: Sweden

Project Type: Open Pit Iron Ore

Products Used:

- E*STAR Detonators
- Paradigm Software

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THE HISTORY

Since this company was founded in 1890, more than one and a half billion tons of iron ore have been extracted from their mines.

The majority of the iron ore products are sold to European steelworks. Other important markets are the Middle East, North Africa, Asia and the USA.

This companies ambition to be one of the most innovative and high-tech mining companies is the main reason why they are using Austin Powder E*STAR detonators.



THE GOALS

1. Keep the fragmentation quality
2. Get muck pile movement control
3. Get 100% connection control

THE OUTCOMES

1. Explosive Cost Reduction
2. Explosive Volume Improvement
3. Fragmentation Improvement
4. Inventory Reduction



THE CHALLENGES

The typical iron ore blast in this mine uses the following parameters: hole depth 15 m, hole diameter 165 mm, hole depth vary from 10 to 20 m, burden 4,7 m and spacing 5,0 m. The mine requested a separation of ore and waste / control of muckpile movement. The typical, non-electric, blast was done with stemming lengths of 3,3 m.

THE AUSTIN SOLUTION

Iron ore blasts, and all test blasts, with E*STAR electronic detonators were put in a blast design modeling software, Blasting Solutions, and later, Paradigm. Based on inputs and software analysis, best timing (inter-hole and inter-row delay) was calculated and recommended.

Major improvement in blast fragmentation is shown in the graph below. The green line represents a loading scenario with E*STAR electronic detonators, while the red line is representing a scenario with non-electric detonators. It was decided to increase the stemming length from 3,3 m to 4,3 m. This move resulted in the same fragmentation as with previous shots with non-electric detonators.

THE OUTCOME

Using E*STAR electronic detonators with optimized timing focused on rock properties and blast conditions allowed the mine to increase the stemming length from 3,3 m to 4,3 m. That resulted in saving of 25 – 28 kg of bulk emulsion 70/30 which is 9% of the average hole amount.



OTHER BENEFITS OF E*STAR ELECTRONIC DETONATORS

1. Initiation control
2. Control of muck pile movement
3. Dilution control (ore and waste separation)



AUSTIN POWDER