

THE AUSTIN ADVANTAGE

E*STAR SYSTEM
IMPLEMENTATION YIELDS
33% COST REDUCTION



GENERAL INFORMATION

Location: Mina Jilguero, CBB Group, Copiapo, Chile

Industry: Limestone Quarry for Lime and Cement

Products Used: E*STAR, Emulex 2 Plus, Emuline, APB Booster,

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THE HISTORY

Austin Powder began its commercial relationship with the CBB Cales Group in 2017 in the El Way Mine, where they obtained excellent results in the blasting service and management of powder magazines. This relationship gave them the opportunity in 2019 to be awarded the Jilguero Mine contract, despite not being the most economical alternative, to replicate and improve on what was done in El Way Mine.

THE GOALS

1. Reduce powder factor
2. Minimize drilling rate
3. Minimize oversized material
4. Standardize quarry drilling patterns and rock quality
5. Minimize mineral dilution
6. Protect places of interest
7. Reduce fines



CUSTOMER CHALLENGE

For decades, Jilguero Mine dealt with a rocky mass from bad to regular material, 20 to 60 GSI (Geological Strength Index) which made drilling and blasting very complicated and resulted in 19% oversized material and 20% fine material.

Until 2019, the Jilguero mine had significantly reduced drilling parameters that did not exceed the 3.0m (9.8 ft) burden by 2.5m (8.2 ft) spacing in hole diameters of 89mm (3.5 in.)

THE AUSTIN SOLUTION

With Austin Powder Chile's proposal to implement dual system blasting, drilling parameters increased to 3.5m (11.4 ft) burden by 3.0m (9.8 ft) spacing in hole diameters of 89mm (3.5 in). This produced optimal results, well above those obtained for decades, including a 15% reduction of oversized material and a 10% reduction in powder factor.

However, the Austin Powder Experts were convinced that they could continue to improve the blasting results, optimizing the retention of gases with different and heavier stemming material than the drill cuttings. They proposed the client use 6mm (1/4 in) gravel produced by the mine as stemming material, which would help optimize the retention of gases in the stemming area, avoiding the loss of energy as a stemming ejection effect. This change resulted in an 8% reduction of powder factor, and optimization of grinding in the stemming sector and flyrock control.

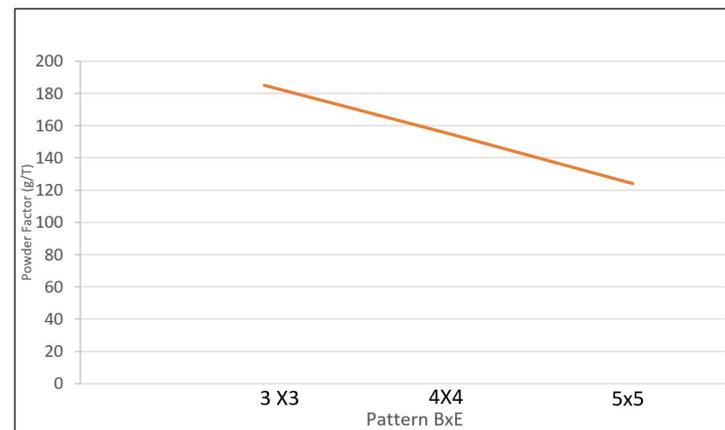
After months of blasts analysis with different sequences and results using non-electric dual detonators, Austin Powder Chile proposed to the customer the implementation of E*STAR detonators, theoretically demonstrating the benefits of versatility and safety, which is enhanced with an economic improvement in the short and long term.

THE OUTCOME

Although the implementation of the Electronic E*STAR System in the Jilguero Mine will result in a decrease in the consumption of ANFO, the business vision is to deliver quality, safe, and economical service based on the long-term relationship with our customers and the technical and operational support towards them.

- Reduction of powder factor by 15%
- Reduction of drilling rate by 23%
- Cost reduction per blasted ton of 33%
- Expected homogeneous fragmentation
- Removal of oversized material

Powder Factor Using E*STAR Electronic Detonators



AUSTIN POWDER