

Jaw Plate Wear Life Increase from 3.5 to 30 Days

Unicast supplies mine with Titanium Carbide (TiC) Jaw Crusher wear parts to combat extremely hard and abrasive material.

PRODUCT

M2TiC Jaw Plates.

APPLICATION

Mining, Jaw Crusher.

CHALLENGE

Standard M2 jaws wore out in 3.5 days which was not acceptable.

SOLUTION

Switch to Unicast’s TiC reinforced manganese alloy jaw plates.

RESULTS

Wear life increased to 30 days for a 8.57x improvement.



A great benefit was obtained from the primary crusher because the size of the material feeding the SAG mill was consistent.

Maintenance Manager,
Triton Minera

Cast replacement wear parts with improved wear life.

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BACKGROUND

Unicast M2 jaws successfully delivered a wear life of 7 days fixed / 14 days movable in an open pit combination underground mining application at Triton Minera’s El Limon plant in Nicaragua.

CHALLENGES

When the application changed to underground only, the increased hardness and abrasiveness of the material found underground reduced the wear life of the standard M2 jaws to 3.5 days fixed / 7 days movable. Triton Minera challenged Unicast to increase the wear life of the crusher jaws to suit this new application.

SOLUTION

Unicast custom-designed a set of **M2TiC Jaw Plates** which featured TiC inserts in the high-wear areas of the manganese alloy jaws. This design improvement (Photo 1) increased the wear life to 15 days fixed/ 90 days movable.

Upon analysis, the fixed jaw showed wear in areas without TiC inserts, indicating that the highly abrasive material made contact with the entire surface of the plate (Photo 2). The movable jaw also showed excessive wear in the wedge.

Unicast engineers decided on TiC inserts throughout the entire impact surface of the jaws to further increase wear life (Photo 3). The addition of a full length curved plate in the movable jaw further increased wear life.

PERFORMANCE & RESULTS

The final design of the fixed jaw plate solved a critical wear issue for Triton at the El Limon plant in Nicaragua. Engineers Rivas and Soriano certified the wear life of the Unicast Jaws operated for 726 hours, or just over 30 days of 24-hour continuous operation. This dramatic improvement of over **8.57x the wear life** of the original manganese jaws was met with extreme satisfaction. The engineers at Triton expressed confidence in the movable jaw and do not feel the need to test its wear life as they “expect exceptional functioning knowing the performance of the fixed jaw”.

