CASE STUDY

UNICAST
REDEFINING WEAR PARTS

60 mm TiC Hammers Offer Outstanding 300% Wear Life Improvement at Cement Plant

Unicast's TiC inserts for a limestone crusher's hammers significantly reduce abrasion.

PRODUCT
Unicast hammer with M19 manganese alloy and 60 mm-long TiC inserts.

APPLICATION
Limestone crushing, Pennsylvania primary crusher

CHALLENGE
Improve the lifespan of the limestone hammer in UNACEM's Pennsylvania primary crusher, which was getting only 200,000 metric tons per set of hammers.

SOLUTION
UNACEM's crusher was fitted with a Unicast hammer cast in an M19 manganese alloy with 60 mm TiC inserts.

RESULTS
Unicast was able to triple the life of the crusher's hammer to 600,000 metric tons, offering a great value for the money UNACEM invested in the project.

Cast replacement wear parts with improved wear life.

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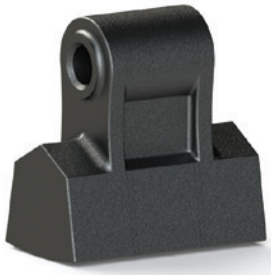
BACKGROUND
At Compañía Cementera UNACEM's Atocongo plant in Lima, Peru, the company was using hammers from local foundries in its Pennsylvania primary crusher. The hammers would only have a lifespan of 200,000 metric tons due to high abrasion.

CHALLENGES
UNACEM wanted to get a longer life out of its limestone crusher's hammers, in order to reduce maintenance and labour costs and downtime incurred to switch out worn-down hammers.

SOLUTION
In order to improve the hammer's wear life, Unicast installed a set of hammers with a 19 per cent manganese alloy and titanium carbide (TiC) inserts. The inserts were 60 millimetres long, and had a hardness of 60 HRC. The M19 manganese alloy—which has a nominal hardness HRC of 230-250 and is typically used for high-abrasion, lower-impact wear parts—was able to surpass the OEM replacement hammers in wear life. The TiC inserts improve the hammer's ability to withstand heavy impact, which increases its structural strength and lengthens its lifespan.

PERFORMANCE & RESULTS
UNACEM saw a 300 per cent improvement in its hammer wear life with Unicast's manganese alloy hammer with TiC inserts. The hammer now has a lifespan of 600,000 metric tons. The solu-tion was provided at an excellent cost-benefit ratio, and UNACEM saw an increase in produc-tion and reduced labour and maintenance costs.

SUMMARY
Unicast's replacement hammer, cast in a M19 manganese alloy with TiC inserts, lasted three times longer than hammers made by local Peruvian foundries, saving UNACEM money on maintenance.



Before

After

After