



REMOTE SHOTCRETE SHAFT LINING

MACMAHON UNDERGROUND MINING

**WITH
MORE THAN
20 YEARS'
EXPERIENCE
MACMAHON HAS
EXPANDED ITS
CAPABILITIES TO
OFFER OUR CLIENTS
A COMPLETE SUITE
OF UNDERGROUND
SERVICES.**



Macmahon's robotic shotcrete shaft liner offers an economic solution to expensive problems.

The state of the art machine has been engineered to enhance the safety of operators working around an open hole and improve the quality of the final shotcrete lining.

The shaft liner incorporates technology to enable pre and post scanning of the shaft to gauge an accurate thickness measurement of the applied shotcrete. Infrared cameras monitor the spraying, relaying live images to the operator.

A Citect control system gives the operator precise control over all functions of the robot to produce a superior sprayed product with minimal rebound. These controls result in significant savings by greatly reducing the shotcrete volume required to complete the lining.

Shotcrete application is monitored and recorded on DVD to demonstrate spray consistency. This recorded footage of the shaft can also be used to inspect the condition of shaft walls and identify any faults or overbreak.

Macmahon prides itself on the fact that its systems, processes, support and equipment design enable the shaft liner to operate independently at site whilst exceeding clients' expectations.

The infrastructure is designed to be self supporting, with only minimal craneage assistance required during initial set up.

The design of the shaft liner winch deck platform enables the unit to be set up in close proximity to the shaft collar without exposing personnel to any associated hazards. Additionally, intelligent design has significantly reduced the hazards associated with working around moving lines with the use of hose reels and guarding.

The shaft liner can line surface to underground raises or be taken underground to line internal raises. Macmahon can line shafts of the following specifications:

- Diameter: 1.5m–8.0m
- Inclination: 90°–55°
- Depth: 500m

Past and present contracts include:

CSA (NSW)

CMPL – Base metals

CADIA (NSW)

Newcrest – Gold, copper

CARBOROUGH DOWNS (QLD)

Vale – Coal

COSTERFIELD MINE (VIC)

Mandalay Resources – Gold

DAISY MILANO (WA)

Silver Lake Resources – Gold

DARGUES GOLD (NSW)

Diversified Minerals – Gold

FOSTERVILLE (VIC)

Kirkland Lake Gold – Gold

JUNDEE (WA)

Newmont – Gold

OLYMPIC DAM (SA)

BHP – Copper, uranium, gold

THALANGA (QLD)

Red River – Zinc, copper, lead

TRITTON (NSW)

Straits Resources – Base Metals