



MACMAHON



Remote Shotcrete Shaft Lining

Macmahon Underground Mining



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 images to the operator in real time.

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 crange assistance required during initial site 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: 1.8 m - 8.0 m
- Inclination: 90° - 55°
- Depth: 380 m (improvements are on track to extend this to over 400m)

Past and present contracts include:

Fairyland Mine (WA) - Barrick
(Gold)

CSA Mine (NSW) - CMPL
(Base metals)

Cadia Mine (NSW) - Newcrest
(Gold/Copper)

Jundee Mine (WA) - Newmont
(Gold)

Fosterville Mine (VIC) - Northgate Minerals
(Gold)

Stawell Mine (VIC) - Northgate Minerals
(Gold)

Wattle Dam Mine (WA) - Ramelius Resources
(Gold)

Tritton Mine (NSW) - Straits Resources
(Base Metals)

Carborough Downs Mine (QLD) - Vale
(Coal)

Victor Long (WA) - Lightning
(Nickel)

Daisy Milano (WA) - Silver Lake Resources
Olympic Dam (SA) - BHP Billiton

Osborne (QLD) - Ivanhoe
(Copper, gold, zinc)