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MULTICRETE RAISE ROBOT™ TECHNICAL DATA SHEET

DESCRIPTION

The **Multicrete Raise Robot™** is a remotely controlled robotic assembly for the spraying of shotcrete; used in shafts and raises of subterranean excavations. Together with the Raise Ranger, these robotic units are designed for use in mines and on large civil construction projects.

Standard **Multicrete Raise Robots™** are designed for use in raises a minimum of 1.5 meters diameter up to a maximum of 10 meters diameter. Hydraulic retractable arms stabilize the **Multicrete Raise Robot™** and allow for undulations along the interior surface of the raise.

In 2008 Multicrete™ completed a 3.5 meter diameter X 300 meter raise. A second raise, over 400 meters in depth was completed in 2009.

OPERATING PRINCIPLE

The **Multicrete Raise Robot™** is lowered by means of a heavy-duty incremental winching system. This system allows for variable speeds from 5 cm/minute up to 6 m / minute.

During its descent, the **Multicrete Raise Robot™** washes (hydro-blasts) the interior surfaces, as well as videotaping the entire raise.

On its return, the unit commences spraying shotcrete in a uniform single pass. The electric motor on the spray head allows for 360° non-stop rotation.



Figure 1: **Multicrete Raise Robot™** at top of Raise Shaft



Figure 2: **Multicrete Raise Robot™** completing top metre of 3.5m x 300m deep raise.

APPLICATION OF SHOTCRETE:

The **Multicrete Raise Robot** is used in conjunction with the ALIVA electric powered shotcrete machine mounted on a Multicrete™ Integral Predampener.

Predampened material is conveyed through 50 - 65 mm. diameter heavy duty hose for the remote application of shotcrete via the **Multicrete Raise Robot**™.

At surface level, technicians monitor the progress of the **Multicrete Raise Robot**™ via video display. This allows for the rate of application to be modified without personnel entering the raise.



Figure 3: Setting up the **Multicrete Raise Robot**™ over the vent raise.

SHIPMENT

All the required equipment, spares and accessories can be compacted for shipment into a 20' sea container. The **Multicrete Raise Robot**™ collapses to just 1.8 meters in height, 2.7 meters in length and 1.8 meters in width for ease of transport.



Figure 4: Bags of dry pre-blended shotcrete suspended over pre-dampener hopper



Figure 5: Split screen viewing of shotcrete application