

DISTANCE CONTROL — SUPPORT DRILLING

SMI ROOF BOLTER



The operator is no longer under the drill

Remote drilling from a supported area, and the air leg holds the angle on every hole.

UNDERGROUND APPLICATION

- Low stoping with roof bolts
- Development roof bolting and secondary support
- Gulley and development roof bolting
- From 900 mm minimum operating stoping width
- Any application where the operator would stand beneath the drill

TRIALLED AND TESTED

Cooke 1# & 2#, Randfontein

Pillar extraction at a 0.86 m stoping width, with integrated roof bolting

2009



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THE PROBLEM — UNDERGROUND REALITY

- With conventional drilling the rock drill operator stands directly beneath the rock drill, exposed to falling rock.
- Holding the mine standard drilling angle of 70–90° by hand is difficult, so face shape and advance rates suffer.
- Manual drilling puts significant strain on the operator, causing fatigue, loss of accuracy and slower production.
- Inefficient drilling raises downtime, support requirements and operating cost across the section.

THE SMI SOLUTION

A remote-controlled air leg and rock drill remove the operator from directly beneath the drill, so the work is done from a supported area. An independent air leg holds the correct angle, taking the human error out of drilling discipline. Air and water are fed through hoses to the rock drill, air leg and stinger, regulated by Victoria and ball valves — and the ball valve on the water line shuts off supply whenever the machine is not drilling.

BENEFITS

- Remote drilling removes the operator from the hazardous area, so the work is done in a supported environment
- Faster and more effective drilling, with less physical effort from both the operator and the assistant
- Improved drilling angles ensure the support is installed correctly
- Less labour-intensive — one operator can manage the bolter, best supported by one assistant
- The 90° bolter optimises support drilling in standard mining applications
- Water is conserved: the ball valve saves supply whenever the machine is not in use

SPECIFICATIONS

EXTENDED LENGTH	950 – 1 900 mm	DRILLING TIMES	1.5 m in 1 min 27 s 2.6 m in 2 min 30 s
ASSEMBLED HEIGHT	Small 740 – 1 550 mm Large 1 080 – 2 390 mm	HARD ROCK EXTRACTION	20 seconds to collaring of the next hole
REACHABLE DISTANCE FROM FACE	300 mm	AIR PRESSURE	3 – 7 bar
MASS	8.5 – 12.5 kg, excluding rock drill	REMOTE	5 m hose 14 kg
MINIMUM OPERATING STOPPING WIDTH	900 mm	HANDLING	Manually on the face
AIR LEG	Pneumatic — operates with a pneumatic drilling machine	STORAGE	Stacked clear of mobile equipment, ore and travel paths

VARIANTS

- **Low stoping** — 8.5 kg; low stoping roof bolts
- **Pencil** — 17.5 kg; development bolting and secondary support
- **High stoping** — 22 kg; gulley and development bolting
- All variants drill remotely; only the pencil bolter needs a spanner to collar

SUGGESTED SPARES
Defined spares set per product

IMPLEMENTATION
Dependent on the contract negotiated