



MacLean 
Application Intelligence

Total shotcrete solutions for mining and civil tunneling

OUR COMMITMENT TO MINING SAFETY AND PRODUCTIVITY RUNS DEEP.

CANADA | USA | MEXICO | PERU | SOUTH AFRICA | AUSTRALIA

macleanengineering.com

 **MacLean**
Performance. Reliability. Innovation.



Welcome to the next generation of MacLean Total Shotcrete Solutions.

We've got your back.

MacLean 'Application Intelligence' is a statement of fact – our core business function of designing mobile equipment specific to the actual job required in underground mining - as well as our core value proposition to the industry. It is the sum of five decades of mining sector know-how, broad-based engineering expertise, continental manufacturing capacity, and global, full-spectrum site support.

The MacLean shotcrete product line embodies the depth and breadth of the 'Application Intelligence' ethos. We are your one-stop-shop for all shotcrete needs, with multiple models of world-class wet and dry sprayers to multiple concrete transport vehicles depending on your site's concrete manufacturing and delivery infrastructure. And our 'Total Shotcrete Solutions' approach also delivers industry leading on-vehicle digital technology for optimized operations and maintenance.

The SS5 Shotcrete Sprayer unveiled in 2021 was completely redesigned from the ground up, offering up a mobile shotcrete delivery system with best-in-class performance, ergonomics, safety, and ruggedness, with the option of battery electric or diesel-powered drivetrain, and Quickscan, Auto-Dose, and Chemsave technologies for real-time thickness imaging and significant accelerant savings.

The SS2 Shotcrete Sprayer is the solution for mines with narrower cross sections, and the SD2 is our option for mines where dry shotcrete application is the preference.

When it comes to concrete transport, the MacLean TM2 and TM3 Transmixers are your solutions for smaller or larger cross-section mine designs where concrete is fully mixed on site. Alternatively, our AG3 Agitator unit is the answer for mines that want the option to mix their concrete in-transit to the shotcrete application working area underground.

Last but not least, the newest addition to the MacLean Shotcrete Product Line – the BP3 Mobile Batch Plant for the provision of instant, fresh, exact-mix shotcrete in-situ – exactly where and exactly when you need it underground. This innovative solution is a partnership with the rugged application mobile equipment specialists RufDiamond and Bay-Links, and we are thrilled to now be able to offer it up to underground construction projects around the world.

Shotcrete On-Vehicle Technology – Quickscan and Chemsave

Chemsave

Enhance your savings on accelerant



- Increased savings on accelerator consumption, up to 50% reduced usage.
- Increased quality control standards.
- Specialized method of atomization and adhering of accelerant particles to cementitious material at a molecular level.
- Aid in determining and setting re-entry times due to improved predictable shotcrete set times.
- Enhanced rebound reduction.
- Greater Productivity and Efficiency: less time needed to re-tram to fill accelerator tank during shifts.
- Synergistic synchronization with MacLean Auto-Dose system. Set it and Forget it.

Illustration of Cost Savings:

Based on 50m³ of shotcrete per shift savings and 7% accelerator utilization (36,500m³ per annum)

- 2560 USD\$ per 2000L, Total = 1.28\$ /L
- 28L/m³ of accelerator used = 35.84\$ /m³
- 50m³ = 1,792\$ of accelerator per shift
- 1,792\$ per shift = 3,584\$ per day
- 365 days of operation = 1,308,160\$ in accelerator alone per year (not including wastage and excessive ordering practices)

Using Chemsave with Auto-Dose can equal up to 654,080\$ in savings per calendar year alone, not including savings in time and increased materials remaining on drifts during shots, thanks to enhanced rebound reductions.

Over
600,000\$
in savings
each year!

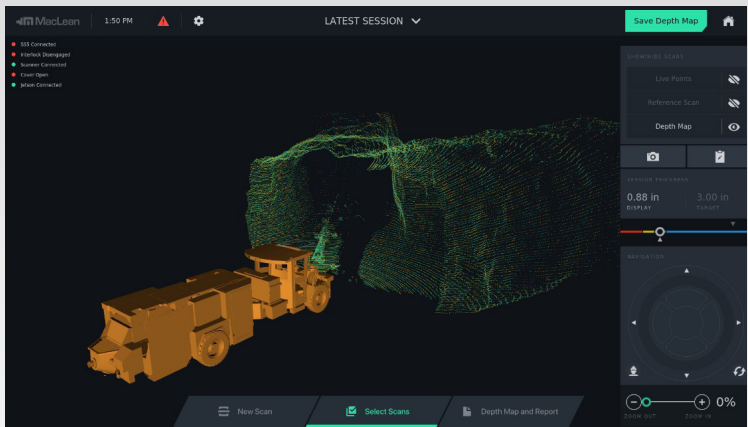
Disclaimer:

The data is based on trials, is for guidance and is given in good faith but without warranty, since site conditions and care and skill of application are beyond our control.

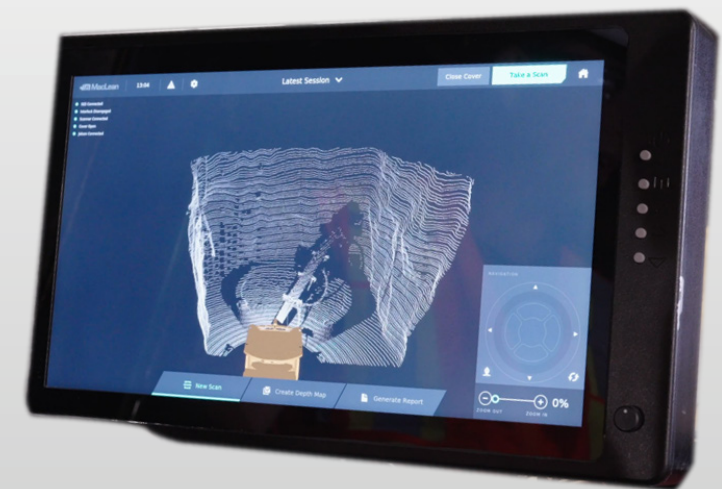


Quickscan

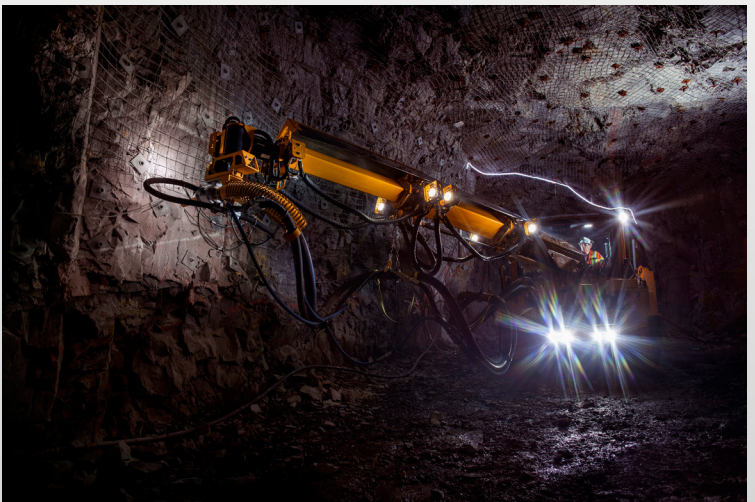
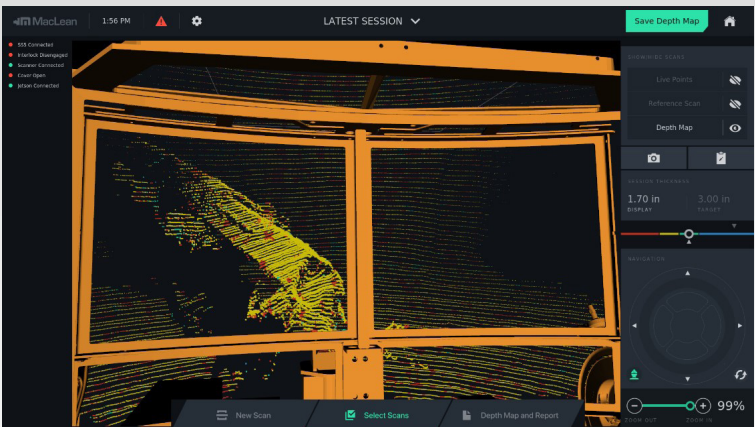
Improving the efficiency of shotcrete application



- The Quickscan system provides the operator the ability to easily assess, visualize, and report the progress of spraying shotcrete in real-time during the spray session.
- Over usage of shotcrete material eliminated while meeting the ground support specifications provided to the machine operator.
- Quickscan also offers compatibility with Deswik mine software, providing the ability for file scans and geo-referencing integration.
- Quickscan provides an industry-leading solution to improve shotcrete spraying operations without the need to change operational procedures and processes.



Real-time shotcrete thickness scanning



SS2 Shotcrete Sprayer



Features:

- Up to 19.5 yds³/hr (15 m³/hr) spraying rate
- Clean, high-powered, electronically controlled engines
- Diesel or electric spraying capability
- Auto-dosing shotcrete accelerator system
- Self-sufficient air supply available
- Four-wheel drive, articulated steer carrier
- Auxiliary support systems
- Stabilizing / lift jacks

Options:

- Canopy and enclosed cab option
- On-board electric driven air compressor
- Electric-Hydraulic power pack
- Radio Remote upgrades for sprayer controls

Benefits:

- Operator friendly spraying controls provide flexibility and high productivity
- Reduced airborne dust compared to dry spraying method
- Ease of maintenance with electronic engine diagnostics, accessible fuel filling and grease points
- Carrier complies with current underground specifications for mobile equipment operating on steep inclines



SS5 Shotcrete Sprayer



Features:

- Seven-foot wide heavy duty carrier frame
- 2.5" hose package with 3" package available
- Spray from cab using the joysticks on the chair
- Variable pumping rate sprays up to 30 yds³ (23 m³/hr) of shotcrete per hour
- Form oil sprayer with 11 US gal (40 L) tank, hose reel, and nozzle

Benefits:

- Enhanced operator comfort and visibility
- Diamond Boom design reduces matter buildup and supports accessible maintenance.
- Spray measurement and enhanced dosing technology to reduce shotcrete and chemical accelerant consumption
- Enhanced safety with 'no boots on the ground' operation, full time spray-from-cab operation, using Maclean-designed, OEM remote control
- Pump can handle larger aggregate, typically used for general purpose concrete, using the sprayer as a concrete pumper truck for underground construction activities

Options:

- Available with battery electric or diesel powertrain options
- Parallel lancing spray boom
- Quickscan thickness monitoring with real-time view on in-cab screen
- ChemSave
- Radio or tethered remote control for out-of-cab spraying
- Auto-lube system for carrier, concrete pump, and spray boom base
- High-pressure low-flow water scaling
- On-board compressor
- Electric-hydraulic powerpack



SD2 Dry Shotcrete Sprayer



Features:

- Multicrete Hybrid-Wet® Shotcrete technology
- Up to 13 m³/hr (17 cubic yards/hr) spraying rate
- Four cylinder, four stroke – electronically controlled
- Heavy duty four-stage telescopic spray boom with 4.1m (160”) extension
- Accelerator pump synchronization
- Hard wired remote control for boom
- 6.5 tonne dry material capacity

Benefits:

- Purpose built for mining applications
- Reduced airborne particulates while ensuring high quality performance
- Ease of maintenance with electronic engine diagnostics, accessible fuel filling and grease points
- Insulation blankets on exposed components

Options:

- Battery Electric Propulsion
- Electro-hydraulic power pack with cable reel
- Certified ROPS & FOPS enclosed cabin
- Fire suppression & LVS fire suppression upgrade

Accelerator Dosing System:

The Multicrete Hybrid-Wet™ Shotcrete Carrier is equipped with an accelerator pump and tank. The accelerator tank is constructed of stainless steel with a mild steel protective mounting frame. The tank has a volume of 210 liters max capacity and 189 liters at 90% fill rate. The tank can be filled from the Cam Lock fittings or the vent cap filler spout. The onboard liquid accelerator system is synchronized to the shotcrete machine.

BP3 Mobile Batch Plant



Features:

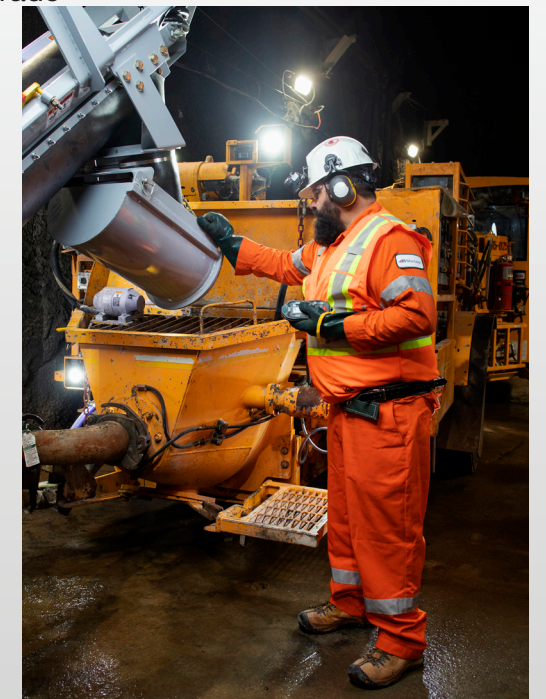
- Mix dry to wet shotcrete
- 6m³ dry hopper
- Four-wheel drive articulated carrier and powershift transmission provide superior traction
- Batch Pro Connect Pre-Blend Mixing digital screen, programming and remote
- 500L water tank
- 3.3m mixing auger with up/down capabilities

Benefits:

- Ability to mix dry concrete to wet with a high capacity
- Long life powertrain using proven components
- Ease of maintenance with electronic engine diagnostics, accessible fuel filling and grease points
- Heavy-duty frame construction

Options:

- Battery electric propulsion
- Electro-hydraulic power pack with cable reel
- Certified ROPS & FOPS enclosed cabin
- Fire suppression & LVS fire suppression upgrade



TM3 Transmixer



Features:

- Up to 7.8 cubic yards (6.0 m³) concrete payload
- Drum tilt with 19" (0.5 m) vertical travel
- Low-profile drum
- Four-wheel drive, articulated steer carrier
- Axles and tires sized for extreme load conditions

Benefits:

- Reverse drum rotation allows for discharge without tilting the drum
- Battery powered carrier offers zero-emissions, enhanced safety, reduced maintenance, and savings on ventilation costs (Battery electric vehicle variant)
- Regenerative braking down-ramp provides up to 35% energy recuperation, and acts as a retarder to reduce excessive wear on service brakes (Battery electric vehicle variant)
- External hydraulic actuator is operator friendly and reduces damage to door opening mechanism
- Large oval charging port provides operator flexibility and convenience with setups
- Low cost, dependable mine supply vehicle

Options:

- Enclosed cabin with heat and AC
- Accelerator tank and transfer pump @180L (48 US gal)
- Form oil spray system (with hose reel and wand) @ 75 L (20 US gal)
- Fire suppression,check-fire auto detection and hand held extinguisher
- Radio or hard-wired remote



AG3 Agitator



Features:

- 7.8 cubic yards (6.0 m³) concrete payload
- Self-propelled, 4 wheel drive articulated steer carrier with a heavy duty frame construction
- Low profile mixer drum
- Hard wired remote control for drum and chute controls

Benefits:

- Operator friendly hydraulic discharge door and large oval charging ports for convenient setup
- Battery powered carrier offers zero-emissions, enhances safety, reduces maintenance, and saves on ventilation costs (Battery electric vehicle variant)
- Regenerative braking down-ramp provides up to 35% energy recuperation, and acts as a retarder to reduce excessive wear on service brakes (Battery electric vehicle variant)
- External hydraulic actuator is operator friendly and reduces damage to door opening mechanism

Options:

- Electric/hydraulic powerpack for operation with shotcrete sprayer
- Fire suppression,check-fire auto detection and hand held extinguisher
- Enclosed cab and canopy



Full shotcrete auditing services



Quality Control:

- Material sourcing
- Mix designs
- Aggregate assessment
- Water quality
- Site testing
- Field testing, initial-early and final strength evaluations



Application Training:

- Operator evaluation and training
- E-learning
- Operator certification examinations
- Nozzelman evaluation, dry, wet, robotic and hand nozzle methods
- Shotcrete receival procedures



Batching:

- Process
- Batch Plant assessment
- Surface mixer truck inspections
- Underground transport methods



EFNARC C2 Certification

- Available as an option for sprayer purchases
- Will need discussions with mining companies on crew requirements
- Full training and examination program to shotcrete operators on mining and civil sites
- EFNARC trained and certified operators have a greater understanding of the quality of materials being applied as well as the training necessary to ensure efficiency of shot

achieving the
highest standards

EFNARC



SERVICE. SUPPORT.

The MacLean Way. 

WHEN YOU BUY A MACLEAN MINING VEHICLE, YOU ARE FAMILY.

We care that our products and technologies enhance life above ground and below. Whether it's increased safety and productivity, or quieter, more ergonomic, zero emissions operations - our products make a real difference in the world. We back this up with a global branch infrastructure and technical support, field mechanics, and trainers. The result: increased machine productivity and operator safety and a lower Total Cost of Machine Ownership (TCO) for you.

To learn more, reach us at: info@macleanengineering.com



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