

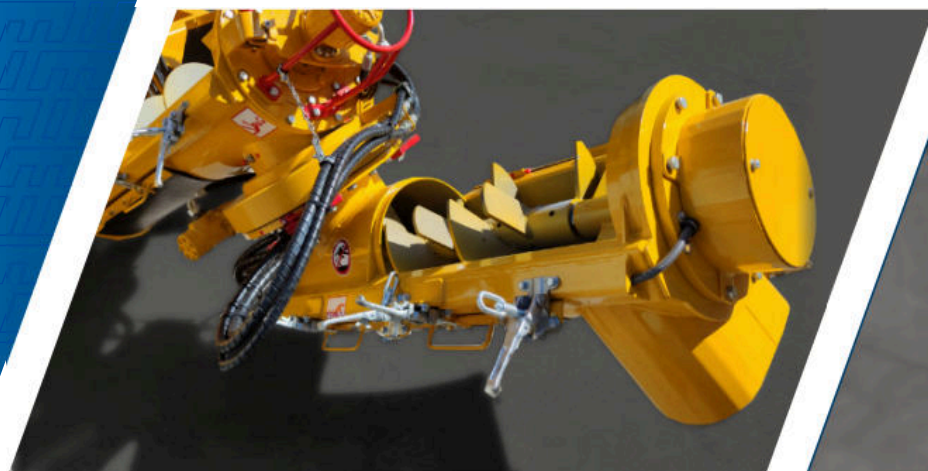


HENCON ALTECRETER PRODUCT RANGE





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MECHANISED MOBILE BATCH MIXING PLANTS AND CONCRETE SPRAYING VEHICLES FOR THE APPLICATION OF MINECRETE S³

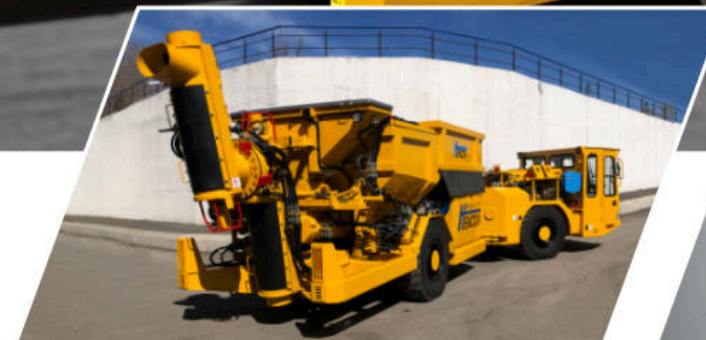
The South African launch of the Hencon Altecreter is the culmination of an exciting joint venture between Hencon and Altecrete.



The Hencon Group sets new standards for engineering, manufacturing and servicing of reliable special and custom made mobile equipment used in the aluminium, mining and forestry industries. Hencon focuses on delivering flexible solutions, achieving high standards and ensuring customer satisfaction.



Altecrete is a concrete specialist founded in 1994 that provides custom material design specifically suited to the high demands and difficult conditions of deep level mining. The pioneer of Thin Sprayed Liner (TSL) technology in the South African mining industry, Altecrete continues to innovate in terms of material science development and equipment design manufacture.



HENCON ALTECRETER

The **Hencon Altecarter** is the world's first self-propelled, underground articulated, all-wheel drive volumetric concrete mixing vehicle.

It's a ground-breaking **mechanised mobile batch mixing plant for the application of Minecrete S³** and offers the following benefits in terms of man, money, machine and Minecrete S³:

MAN & MONEY	MACHINE	MINECRETE S ³
Mobile vehicle delivers, on average, a 23-29% saving on OPEX.	Revolutionary, innovative design for high volume concrete underground batching in the mechanised mining industry.	There are three types of sprayed secondary support liner: Shotcrete, Thin Sprayed Liner (TSL) and Resins. Minecrete S ³ offers the benefits of each technology with none of the limitations.
Offers a 50% cost saving on secondary structural support material requirement due to the high bond, compressive, shear and tensile mechanical strengths.	Designed for the application of the super strong wetcrete called Minecrete S ³ .	Minecrete S ³ is a non-toxic, non-shrink, fast curing, high strength, structural shotcrete that seals like a TSL – providing protection from oxidation and weathering, fibre optional.
Reduces material handling and logistics underground by up to 64% .	Delivers an output of output of 3m³ to 12m³ per hour .	Penetrates rock fractures like a resin, locking the rock in place and preventing block movement (Key Block Interlocking).
Reduced maintenance cost of equipment due to new technology equipment and less m ³ of Minecrete applied per m ² .	Allows for separation of raw aggregate material with only the required quantities mixed per required spray area.	Minecrete S ³ reaches 70% of its full strength within 24 hours .
Reduced transport costs to the mine as less material is required per m ² .	Fitted with an advanced monitoring system and pre-determined calibration system to ensure mixing quality conformance.	Increased productivity with less material applied per m ² .
The cost saving on demand batch mixing and pumping is a mining industry first, due to the innovative design and equipment allowing for reliable and cost effective operations.	Operator interface for easy calibration, setup and process tracking and logging in the cabin, and at the discharge of the trailer.	Reduces rebound to only 4 to 5% as the thixotropic of Minecrete S ³ while spraying helps reduce the amount of product rebounding off the rock face.
Reduces underground material transport traffic which improves production and increases safety.	State-of-the-art fire suppression, pedestrian detection and oncoming vehicle detection systems.	Ensures consistent quality with each application.
Much quicker advance underground due to fast setting times of Minecrete S ³ (blasting can commence two hours after spraying).	Equipped with failsafe brakes as well as a hydrostatic and automatic hydro-dynamic brake system for additional safety.	Due to the ultra fast curing high strength gain, supported areas are work accessible sooner while increasing safety and preventing fall of ground accidents.

MAN & MONEY	MACHINE	MINECRETE S ³
Interior comfort with spring suspended seats, seatbelts, door interlocks and ergonomically designed operator controls in an enclosed, filtered and force ventilated cabin.	The vehicle is fully compliant to the MINE HEALTH AND SAFETY ACT, 1996 (ACT NO 29 OF 1996) regulation 8.10.	Non-toxic and non-flammable.
Extra focus on safety with protected rotating and pinch point parts, added emergency stops in-cabin and at the rear, and approved ROPS FOPS.	Eliminates the need for concrete batching plants and concrete mixers (aggie cars).	Increased chemical adhesion to substrate thanks to advanced chemical technology.
Less wastage with an added easy fault finding diagnostic system on board.	Latest technology engines and control system ensure maintenance and operational cost saving.	Minecrete S ³ is non-shrink, thus eliminating the usual 3 -10% shrinkage that occurs with standard concrete materials.
Permits operator to mix only the desired amount of Minecrete S ³ per spraying operation.	Machine has a lifecycle of 15 000 hours of operation on engines axles, gearbox, prop shafts and brakes.	Very low water uptake with water usage automatically measured and controlled. Wired remote control operation while mixing and discharging for good control and view over the process.
Comfort of mobility, easy to load, operate and clean.	The vehicle can operate at an utilisation of 75% with an availability of over 89% , depending on the level of maintenance.	Wired remote control operation while mixing and discharging for good control and view over the process.

HENCON ALTECRETER PRODUCT RANGE

The Hencon Altecarter product range comprises:

BATCH MIXERS

- High Profile
- Low Profile



SHOTCRETERS

- High Profile
- Low Profile



ALTECRETE

- Minecrete S³



HIGH PROFILE BATCH MIXER



BATCH MIXING VEHICLES FOR CONCRETE

Both the Hencon TransVers High Profile and Hencon TransVers Low Profile Batch Mixers have been designed for the preparation of concrete mixtures (the High Profile Batch Mixer has been designed specifically for Hencon Shotcrete machines).

These vehicles feature articulated frames, with a joint that enables frame articulation and oscillation. Easy access is provided to all components that frequently need to be serviced and maintained. On the front are the cabin, motor compartment, fuel tank and hydraulic oil tank. The following equipment is mounted on the rear: aggregate hopper, cement hopper, fibre hopper, water tanks, water pumps and mixing tube.

They can be safely used in underground tunnels with aggressive environments, significant water content, humidity of between 75 to 100%, high concentrations of conductive dust, and ambient temperatures of between -35°C and +35°C.

Please refer to the individual brochures featuring functional details and full specifications.

DIMENSIONS AND MANOEUVRABILITY

Length	10 200mm	Ground clearance	357mm
Width	2 000mm	Approach angle	16°
Height	2 400mm	Departure angle	14°
Wheel base	4 760mm	Turning radius, outer	7 000mm
Fully loaded vehicle weight	27 000kg	Turning radius, inner	3 750mm
Empty vehicle weight	14 000kg	Gradient	15°
Max. speed	20km/h	Fuel tank capacity	250L



FUNCTIONAL EQUIPMENT

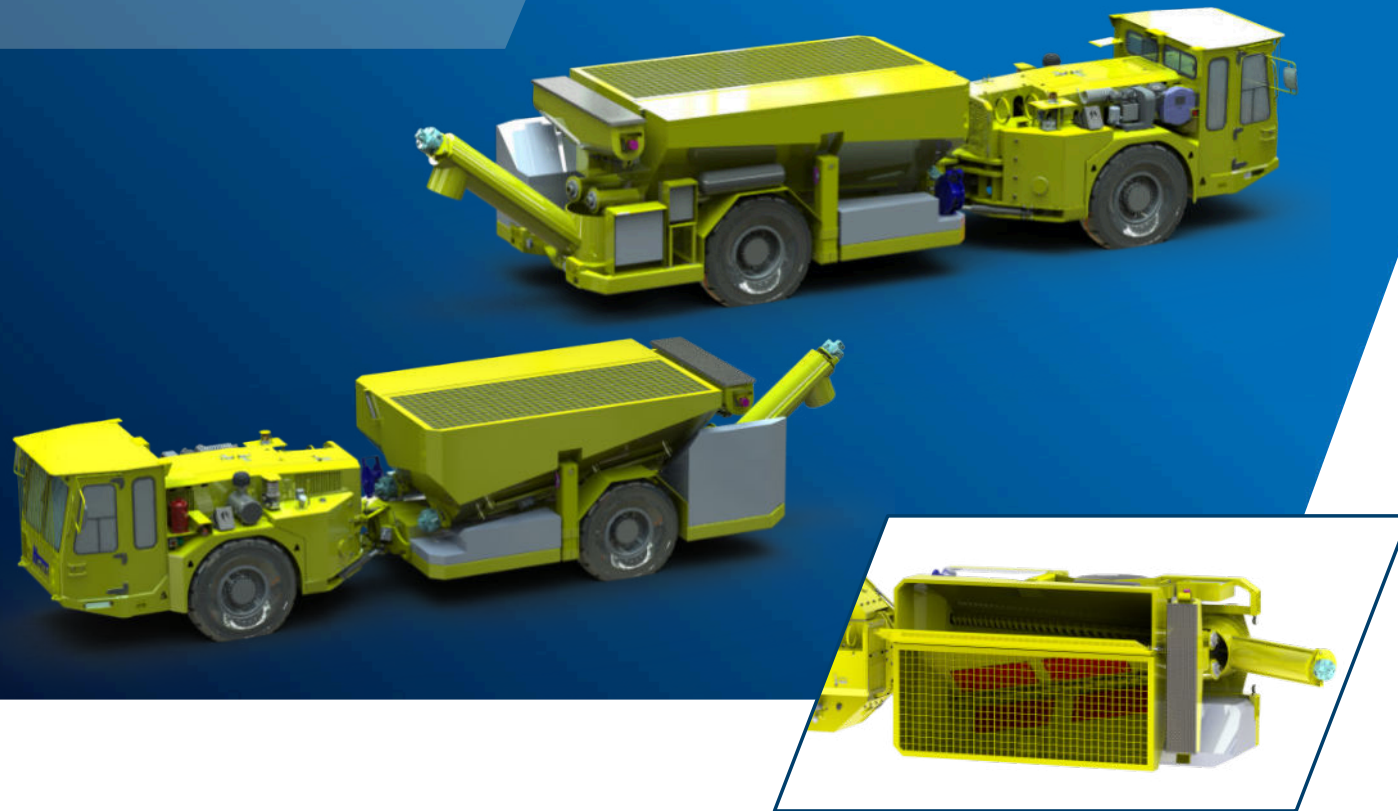
- Volumetric system to mix aggregate, cement, fibre and water to prepare concrete mixture for Shotcrete vehicles.
- Cable remote control unit.
- Digital display next to the mixing tube.
- Aggregate hopper
- Cement hopper
- Fibre hopper
- Water tanks and pumps
- Mixing tube

OPERATOR'S CABIN

- The vehicle has a closed, two-seat cabin with tempered glass windows on all sides allowing good visibility, and integrated

- ROPS/FOPS elements.
- Front window protected by metal bars.
- The driver's seat is adjustable, with suspension and a retractable seat belt.
- Passenger seats are adjustable, with suspension and a retractable seat belt.
- The cabin is fitted with an interior light, and heater with EU7 air filter on the intake.
- Window wipers with window washer on front window.
- Controls mounted in cabin include: Adjustable steering column with steering wheel; drive pedal; service brake pedal; drive direction switch with a horn button; turn signal switch; ignition switch; emergency stop button; keypad for various vehicle functions with LED lighting; digital display; heater speed switch; fire suppression system control panel.
- Digital display.
- Engine start button.

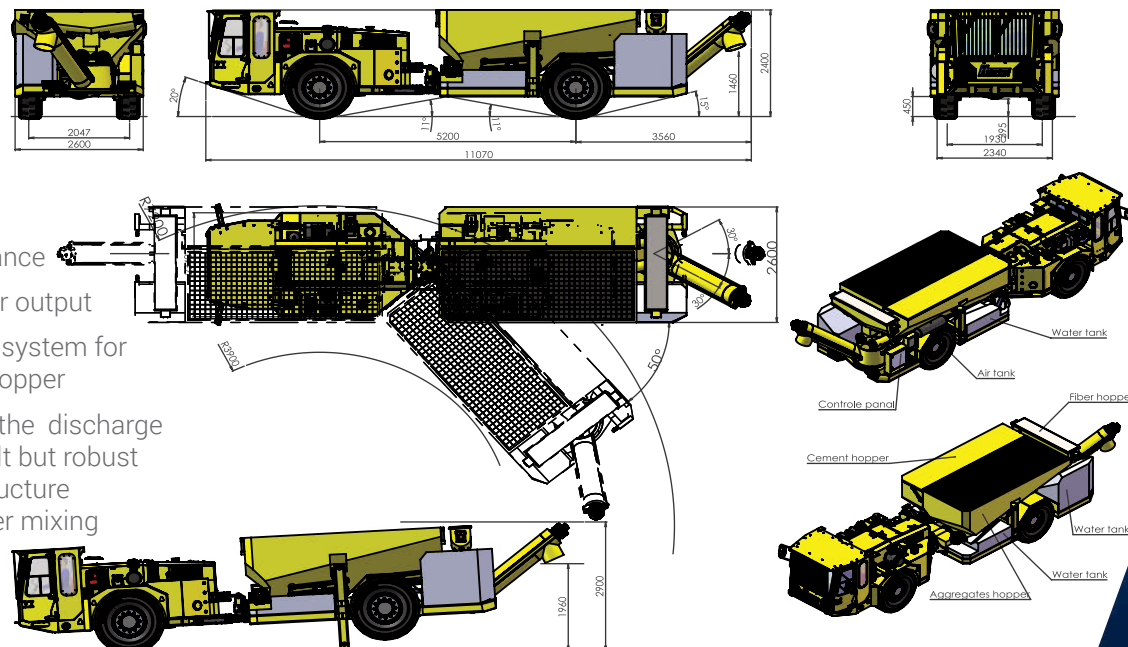
ALTECRETER HIGH PROFILE BATCH MIXER GEN 2



In line with Hencon's continuous improvement philosophy, manufacturing of the second-generation Hencon Altecarter High Profile Batch Mixer is now underway.

Applying what we've learnt during the design, manufacturing and most predominant applications of the Hencon Altecarter High Profile Batch Mixer, its second-generation counterpart offers the following features:

- A bigger machine with an increased total output capacity of 6m³ concrete (previously 5m³)
- Improved clearance
- Increased power output
- A new vibration system for the aggregate hopper
- New design for the discharge auger with no-tilt but robust single auger structure featuring a larger mixing basket



- Advantages of a heightened focus on the discharge tube design:
 - Simplified cleaning process with improved access and fewer cleaning actions
 - Simplified fibre discharge unit
 - Powerful lifting outriggers to control discharge height or compensate for uneven terrain

LOW PROFILE BATCH MIXER

DIMENSIONS AND MANOEUVRABILITY

Length	10 661mm	Ground clearance	265mm
Width	2 600mm	Approach angle	12°
Height	1 600mm	Departure angle	12°
Wheel base	4 871mm	Turning radius, outer Inner	6 750mm 3 700mm
Full weight	11 000kg	Gradient	15°
Max. speed	20km/h	Fuel tank capacity	150L



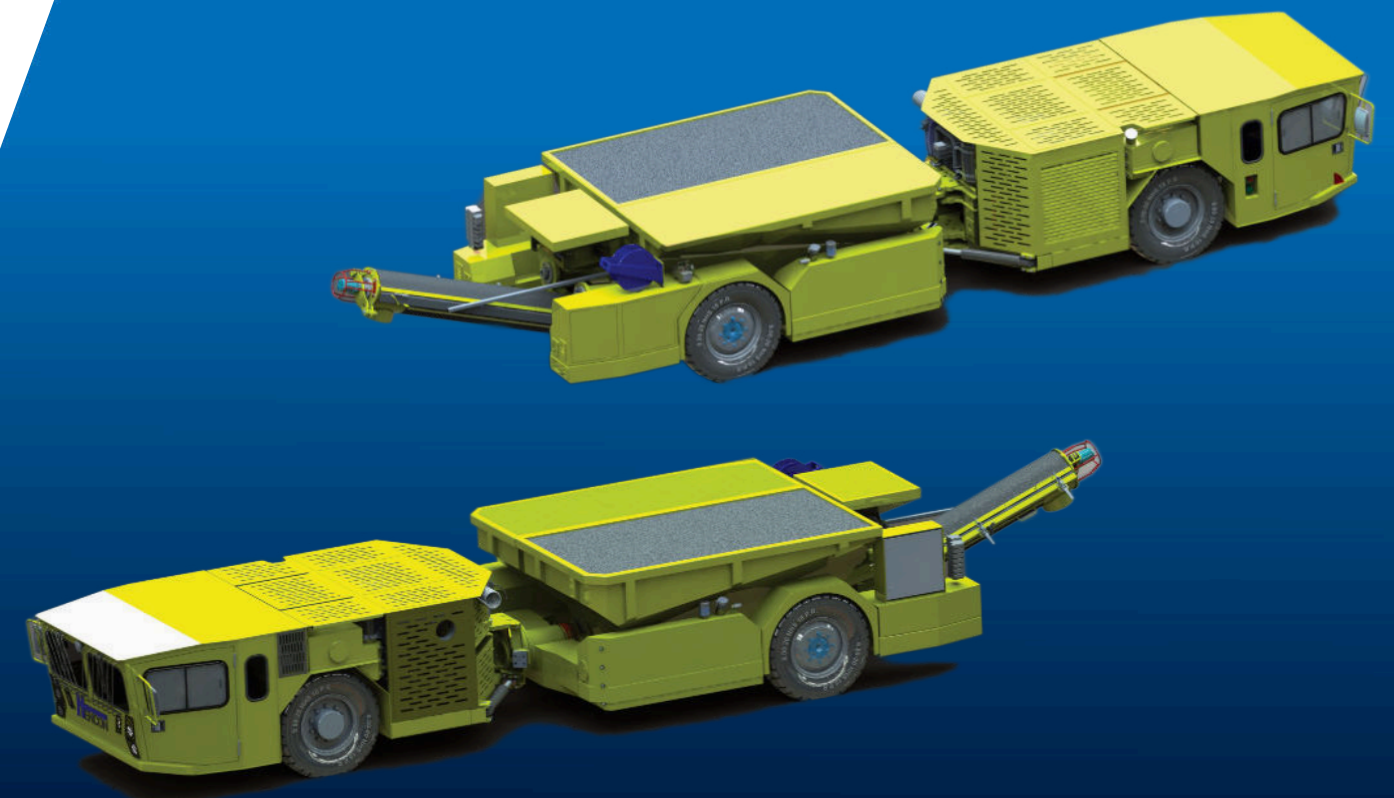
FUNCTIONAL EQUIPMENT

- Volumetric system to mix aggregate, cement, fibre and water to prepare concrete mixture.
- Capacity – 3m³ of concrete.
- Mixing speed of 15m³/h.
- Cable remote control unit.
- Digital display next to the mixing tube.
- Aggregate hopper
- Cement hopper
- Fibre hopper
- Water tanks and pumps
- Mixing tube

OPERATOR'S CABIN

- The vehicle has a closed, two-seat cabin with tempered glass windows on all sides allowing good visibility, and integrated ROPS/FOPS elements.

- Front window protected by metal bars.
- The driver's seat is adjustable, with suspension and a retractable seat belt.
- Passenger seats are adjustable, with suspension and a retractable seat belt.
- The cabin is fitted with an interior light, and heater with EU7 air filter on the intake.
- Window wipers with window washer on front window.
- Controls mounted in cabin include: Adjustable steering column with steering wheel; drive pedal; service brake pedal; drive direction switch with a horn button; turn signal switch; ignition switch; emergency stop button; keypad for various vehicle functions with LED lighting; digital display; heater speed switch; fire suppression system control panel.
- Digital display.
- Engine start button.



WET CONCRETE SPRAYING VEHICLES

The Hencon High and Low Profile Shotcreters were designed to spray wet concrete mixture onto the walls of underground tunnels for reinforcement.

These vehicles feature articulated frames, with a joint that enables frame articulation and oscillation. Easy access is provided to all components that need to be serviced and maintained. On the front are the cabin, motor compartment, fuel tank, hydraulic oil tank, hydraulic outriggers and shotcrete boom, while the rear has the following equipment mounted: concrete pump, air compressor, high pressure washer, electrohydraulic power pack, form oil system, accelerator pump with the tank and a cable reel.

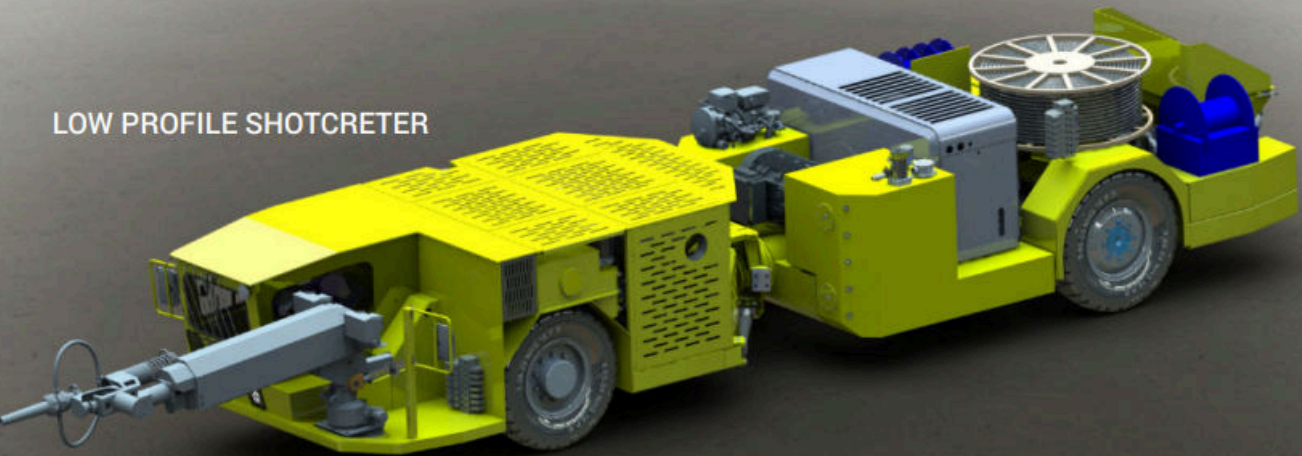
Both vehicles can be safely used in underground tunnels with aggressive environments, significant water content, humidity of between 75 to 100%, high concentrations of conductive dust, and ambient temperatures between of -35°C to +35°C.



HIGH PROFILE SHOTCRETER



LOW PROFILE SHOTCRETER



DIMENSIONS AND MANOEUVRABILITY

Length	11 914mm	Ground clearance	329mm
Width	2 000mm	Approach angle	14°
Height	2 400mm	Departure angle	13°
Wheel base	4 011mm	Turning radius, outer	6 381mm
		Inner	3 138mm
Full weight	20 000kg	Gradient	15°
Max. speed	20km/h	Fuel tank capacity	240L

FUNCTIONAL EQUIPMENT

- The Shotcrete procedure can be performed either with controls in the cabin, or by means of a Radio remote control with 10m cable connection (in case of depleted batteries) to ensure good visibility of the work area.
- Functional equipment can be driven either with the engine of the vehicle or with the electrical power pack.
 - Engine drive – requires compressed air supply from the mine;
 - Power pack drive – requires electrical power supply from the mine for the motor and compressor, and can be used in areas with poor ventilation.
- Radio remote control with 10m cable connection (in case of depleted batteries)
- Shotcrete boom
- Concrete pump
- Accelerator system
- Compressor
- Water hose reel
- Electrohydraulic power pack
- Cable reel
- Form oil system
- High pressure washer

OPERATOR'S CABIN

- The vehicle has a closed, two-seat cabin with tempered glass windows on all sides allowing good visibility.
- The driver's seat is adjustable, with suspension and a retractable lap safety belt.
- The cabin is fitted with an interior light, and heater with EU7 air filter on the intake.
- Standard features include: Window and lights protection, left or right hand controls, washer, wiper and ROPS/FOPS certification.
- Controls mounted in cabin include: Adjustable steering column with steering wheel; drive pedal; service brake pedal; drive direction switch with a horn button; turn signal switch; ignition switch; emergency stop button; keypad for various vehicle functions with LED lighting; digital display; heater speed switch; fire suppression system control panel.
- Digital display.
- Engine start button.

Please refer to the individual brochures featuring functional details and full specifications.

LOW PROFILE SHOTCRETER

ALTECRETE MINECRETE S³

DIMENSIONS AND MANOEUVRABILITY

Length	11 470 mm	Ground clearance	265 mm
Width	2 320 mm	Approach angle	12°
Height	1 600 mm	Departure angle	12°
Wheel base	4 871 mm	Turning radius, outer Inner	6 700 mm, 3 800 mm
Full weight	16 500 kg	Gradient	15°
Max. speed	20 km/h	Fuel tank capacity	150L

FUNCTIONAL EQUIPMENT

- The Shotcrete procedure can be performed either with controls in the cabin, or by means of a remote control unit to ensure good visibility of the work area.
- Functional equipment can be driven either with the engine of the vehicle or with the electrical power pack.
 - Engine drive – requires compressed air supply from the mine;
 - Power pack drive – requires electrical power supply from the mine for the motor and compressor, and can be used in areas with poor ventilation.
- Remote control cable
- Shotcrete boom
- Concrete pump
- Accelerator system
- Compressor
- Water hose reel
- Electrohydraulic power pack
- Cable reel
- Form oil system
- High pressure washer

ALTECRETE MINECRETE S³










INTRODUCTION

Minecrete is the industry's first shotcrete hybrid material, initially developed by combining Altecurete's shotcrete and Tunnelguard thin sprayed liner technologies. The product produces a rapid curing, ultra strong, cementitious sealant and structural support liner that bonds and cures in wet and dry conditions.

- The inherited Tunnelguard thin sprayed liner properties make it a watertight application that seals, protects, and supports various friable rock types by blocking weathering oxidation and preventing self mining before it starts, preserving and supporting the excavations for long term mining.
- The inherited shotcrete properties add structural weight bearing strength when applied at 25mm or higher thickness, creating an ultra strong weight bearing protective Minecrete shell.

In deep level hard rock mining conditions, where excavation fracturing is a common and dangerous problem, Minecrete fills and seals the fractures, binding the blocks together. This inhibits key-block movement, which prevents fall of ground fatalities or injuries. Making Minecrete an important part of seismicity management planning, improving safety and labour confidence.

REDUCED COST BENEFITS

	Reduce transport costs by up to 65%		Reduce materials handling time on surface and underground by up to 65%		Reduce shaft and vehicle costs by up to 65%
	Increase productivity		Reduced maintenance costs on mine equipment by up to 65%		Reduce labour costs on application through higher square meters applied per shift
	Increase mine safety through high early and superior final strengths.		Minecrete S ³ rebound only 4,6% Standard shotcrete rebound 20%-25%		Minecrete S³: 2.5 x 30kg bags = 75kg per m ² @ 25mm thick Shotcrete: 7 x 30kg bags = 210kg per m ² @ 50mm thick

Please refer to the individual brochures featuring functional details and full specifications.

TRAINING

Operator training for the Hencon Altecreeper or other vehicles in the range can be arranged on the client's premises.

MAINTENANCE

Full after-sales support and maintenance services are available to ensure that the Hencon Altecreeper operates at its full capacity at all times.

SALES

For any sales related enquiries about the Hencon Altecreeper or any other vehicles in the range, please send an email to info@henconmining.com

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