

# MINE TRACK & TOOLS (PTY LTD)

## MINDS OF STEEL WITH HEARTS OF GOLD

Mine Track and Tools has a rich 40 years plus experience in the mining industry. As a company we offer you services and products that are of the highest standards at extremely competitive rates. Our products have been well accepted in the market for the last 30 years and we currently supply major mining groups as well as international customers in the USA, Australia, Ghana, Tanzania, DRC and Canada.

### Mine Track AC Loco with LITHIUM Battery

The Mine Track AC Loco incorporates a state-of-the-art AC driven brushless high torque permanent magnet motor. A high-power digital motor controller is fitted within the housing of the motor. This provides very low inductance loops due to the very short cable lengths from controller to motor. Included is an optional 'Emergency Stop/Park' caliper braking system. This is a failsafe park and emergency braking system which is automatically applied during loss of power conditions. Each motor is controlled via a system allowing for the locomotive to be remotely controlled.



### Technical Comparison

**Each Mine Track AC Loco System consists of the following components:**

1. AC Driven Permanent Magnet High Torque Motor.
2. 400 Amp 120VDC Digital Motor Controller.
3. Microcontroller Can Bus Interface Module.
4. Optional Emergency/Park Braking System.
5. Mechanical Brake Override.

	AC Traction Drive	DC Traction Series Wound Motors ("D" Motor)
Efficiency - Regenerative Breaking	More efficient due to fewer energy losses and regeneration	Do not regenerate power back into batteries
Maintenance	Lower maintenance requirements due to fewer moving parts	More maintenance needed as brushes and commutators wear out
Speed Control	Provides better speed control capabilities	Simpler speed control based on power control
Cost	Cheaper to manufacture and purchase. Costs approximately 40% less to kit out a locomotive with A.C. Traction Drives	More expensive to build, maintain and purchase
Overload Capacity	Better able to handle overload conditions	More susceptible to damage from overloading due to arcing commutators
Operational Life	Longer lifespan due to simpler design and fewer moving parts	Typically have a shorter operational life
Noise	Quieter operation	Can produce more noise during operation
Speed Range	Wider speed range capabilities	Limited speed range compared to AC motors

## Maintenance

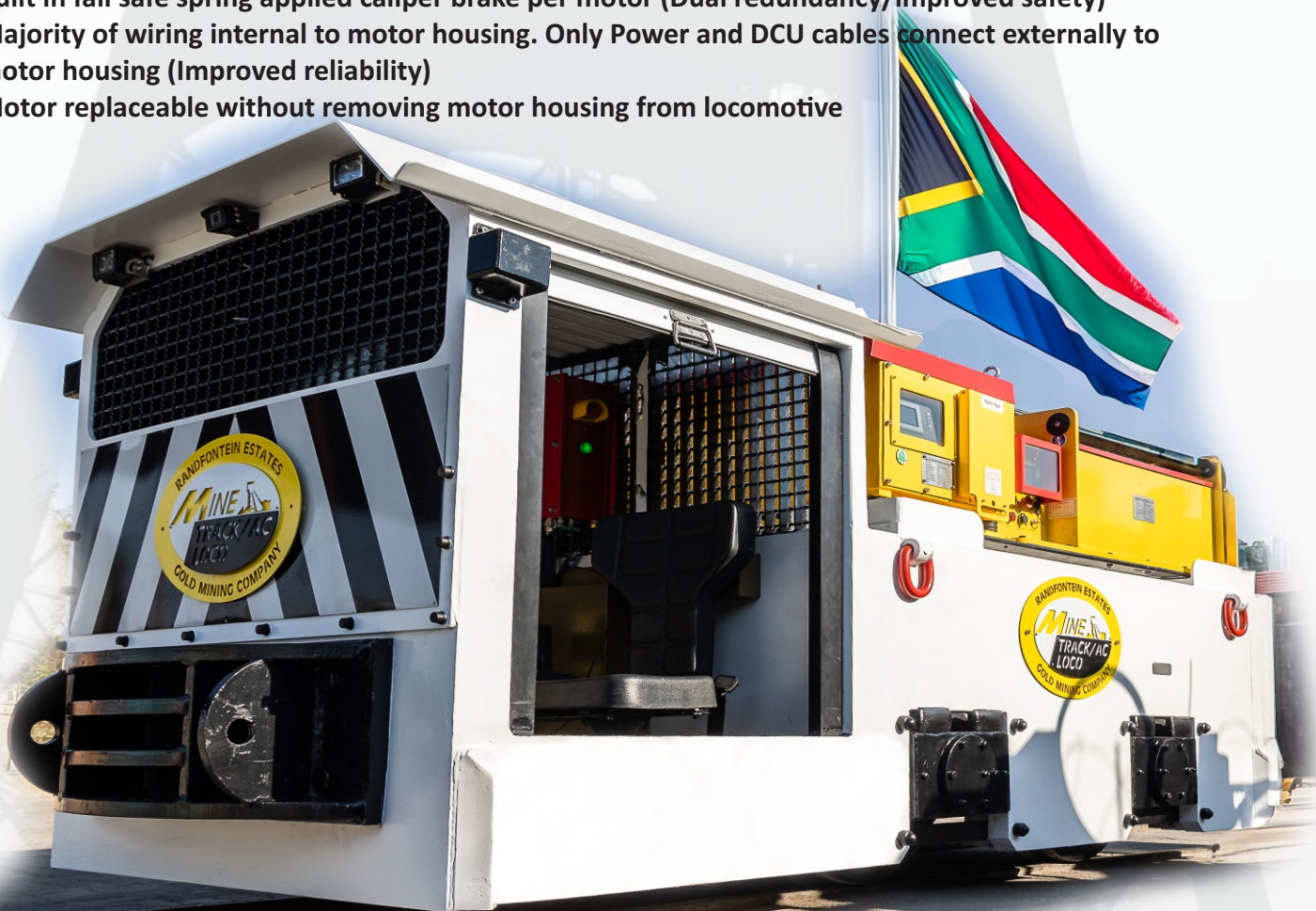
- Modular internal components for easy removal
- Motor can be removed from housing without removing wheel set from locomotive
- Simplified brake pad replacement
- Full motor system diagnostic information available on connected LMS system

## GOOD LOCOMOTIVE ERGONOMICS

- Enhances safety
- Reduces driver fatigue
- Reduces awkward posture
- Improves productivity
- A comfortable locomotive driver is an efficient and safe driver

## Advantages

- Motors work independently (Dual redundancy)
- Motors are speed controlled and not power controlled, reducing wheel slip (Improved safety)
- Regenerative Braking, charges battery during braking (Improved efficiency)
- Built in fail safe spring applied caliper brake per motor (Dual redundancy/improved safety)
- Majority of wiring internal to motor housing. Only Power and DCU cables connect externally to motor housing (Improved reliability)
- Motor replaceable without removing motor housing from locomotive



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