

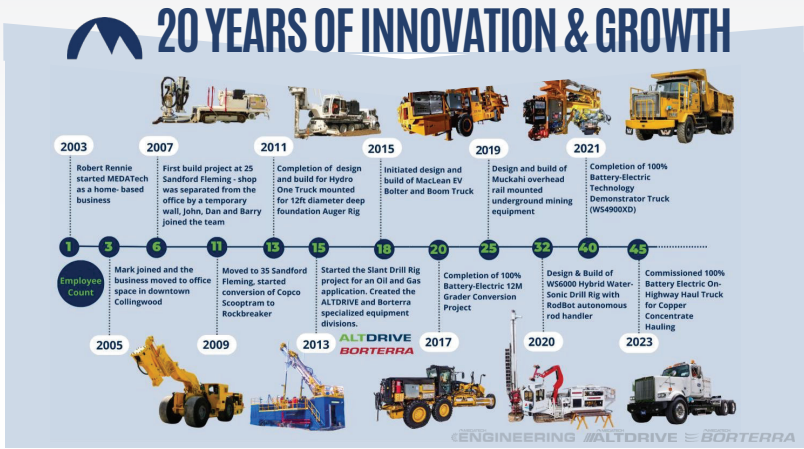
ALT DRIVE

BATTERY-ELECTRIC POWERTRAIN KITS

FOR HEAVY-DUTY MOBILE EQUIPMENT

THE ALTDRIIVE EVOLUTION

The MEDATech ALTDRIIVE journey began in 2014. That’s when the ALTDRIIVE powertrain was born and we began working with mining OEMs to electrify their vehicles. In 2015 we completed our first BEV powertrain installation on an underground roof bolter. In 2017, we installed an ALTDRIIVE system on a road grader and in 2023 we completed the first electrification of an on-highway copper concentrate haul truck for Teck Resources. Now we have battery-electric powertrains hard at work on several continents...and a kit offering to suit most industrial BEV needs.



A HISTORY OF ‘YES, WE CAN’

MEDATech offers a variety of engineered solutions. When we opened for business back in 2003, one big surprise was the variety of solutions we needed to provide. Oil & gas drilling. Nuclear waste transport. A jack system to lift 400,000 lbs. A monorail for mining. Our success lies in our engineering chops and our ability to go from concept to finished product right here, at the MEDATech facility in Collingwood, Ontario. Our engineers, technicians and mechanics design and build the most advanced heavy-duty mobile equipment and software in the world.

BATTERY-ELECTRIC POWERTRAIN KITS TO SUIT ANY INDUSTRIAL VEHICLE

MEDATech’s ALTDRIIVE division has been building battery-electric powertrains since 2014, when there were few options for electrifying heavy-duty industrial vehicles. Times have changed, but not every industrial vehicle manufacturer can afford the time and expense of developing battery-electric powertrains for their machines.

That’s where ALTDRIIVE Battery-Electric Powertrain Kits come in—a fast track to the electric powertrain you need. We provide kits for applications as small as a side-by-side personnel carrier to as large as a 100-tonne surface haul truck.



DRIVING DOWN TIME & COST

Electric motors are simple, but electric powertrains are complex. And the technology is evolving quickly. ALTDRIIVE Battery-Electric Powertrain Kits will save you significant development time and expense.

RUGGED, INDUSTRIAL

We’ve spent over a decade perfecting electric powertrains for heavy-duty industrial vehicles. We continue to source or build rugged, dependable components and evolve the software that makes our offering truly exceptional.

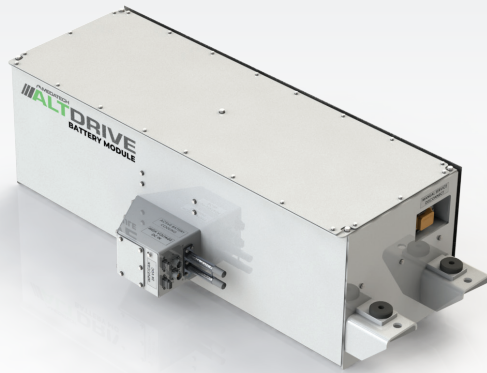
PRE-ENGINEERED MODULES

Components are pre-assembled into sub-systems and configured specifically for your machine, then tested. This reduces installation/ commissioning costs and optimizes system effectiveness.

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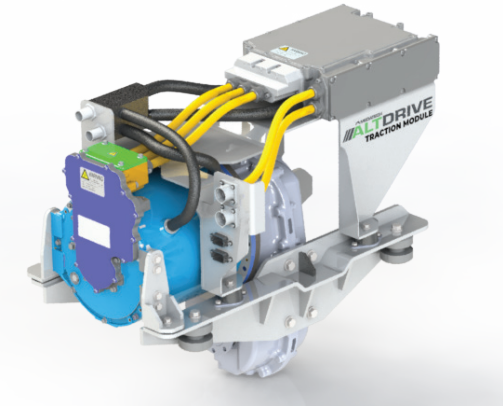
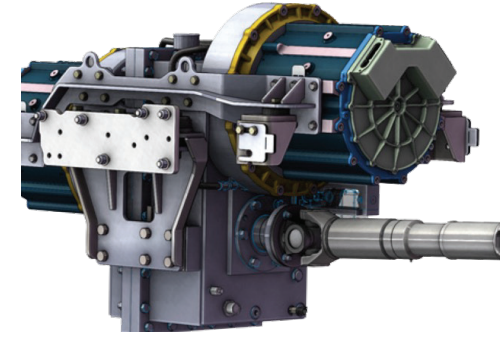
After 10+ years of engineering and supplying battery-electric powertrains for heavy-duty off-highway applications, we've got it down to a science. We integrate the most rugged, dependable components into a system with advanced ALTDRIIVE vehicle management (VMU) software. Your end of things? Placing the modules on your machine and adjusting the lengths of electrical harnesses and hoses between them.



CHARGE & STORAGE

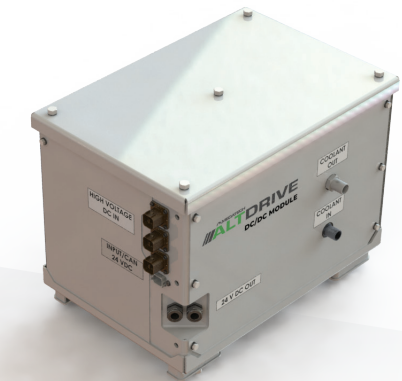
Onboard charging modules are optimized for machine duty cycle and installed battery capacity, with a single interface controlling multiple onboard charger units. These consist of consolidated and optimized coolant connections, a consolidated high-voltage connection, a three-phase AC input power panel and charge controls.

The battery module is made up of individual sub packs, battery disconnect units, master battery controller, thermal control manifolds, high-voltage connections, mid-pack disconnect, and low-voltage connection and communications. Connections to the power management unit and thermal management unit are vastly simplified for the OEM, and cooling distribution is engineered such that each battery string and module has equal coolant flow.



TRACTION

The traction module consists of the traction motors, inverter and gearbox. The motors and inverter are pre-wired, and the coolant connections are manifolded to ensure optimum coolant flow to both motors and inverter.



POWER MANAGEMENT

The power management module distributes high-voltage DC power from the battery system to all high-voltage loads, for example the traction module. The power management module contains engineered fusing, connector high voltage interlock loops (HVIL) and isolation monitoring.



THERMAL MANAGEMENT

The thermal management module provides liquid cooling to all high-voltage components. The passive loop consists of pump, radiator and flow control elements. The active loop consists of the chiller and heater units and flow control elements. This loop is dedicated to the battery system, as battery performance is highly sensitive to temperature.

A KIT FOR EVERY OFF-HIGHWAY APPLICATION

When it comes to electrifying utility and other smaller vehicles, haul trucks or even locomotives, ALTDRIVE has the battery-electric powertrain solution you need.

CASE STUDY 1



ORE CONCENTRATE HAUL TRUCK

SITUATION Leading Canadian miner Teck Resources had committed to replacing 1,000 ICE units by 2025.

SOLUTION Commissioned in 2023, this copper ore concentrate hauler was built to complete 90-km roundtrips from mine site to rail head, 12 hours per day.

RESULT The truck continues to complete its circuit 3 to 4 times per day, with more power than diesels and only a short charge at mine site and railhead.

MEDATech sells all of the parts that make up an ALTDRIVE system. We provide integration consulting as well as commissioning services.

OUR CUSTOMER RELY ON US FOR:

- Custom powertrain development
- BEV vehicle management software
- Vehicle & fleet optimization studies
- EV fleet optimization software (EV-FOS)
- Electric powertrain consulting

If OEMs like Kovatera and end users like Ontario Power Generation rely on MEDATech for development, you can bet you're in good hands.

CASE STUDY 2



KOVATERA MINE UTILITY VEHICLES

SITUATION In 2019, Kovatera decided to expand its underground mining utility vehicle offering with battery-electric models.

SOLUTION ALTDRIVE powertrains were developed for each model of vehicle, to power Kovatera's BEV fleet of utility vehicles and tractors.

RESULT Kovatera vehicles, in use around the world, continue to perform safely, efficiently, and according to customer expectations.

CASE STUDY 3



RESEMIN JUMBO

SITUATION Resemin, a major mining-equipment OEM in Peru, had engaged another partner to electrify their jumbo, with unsatisfactory results.

SOLUTION MEDATech provided Resemin with a full-system BEV powertrain solution based on our ALTDRIVE Powertrain Kits, and is now sharing our integration expertise.

RESULT At time of writing, the project is advancing according to schedule and to Resemin's satisfaction.

A PARTNER FOR LIFE

Want a partner for life? MEDATech designs, builds and delivers what we promise. As a result, we have customer relationships that stretch back 20 years or more: mining and exploration companies, utilities and construction firms who turn to us when they need equipment that's faster, safer, more durable and better for the environment.



 **MEDATECH**
///ALTDRIIVE

BATTERY-ELECTRIC POWERTRAIN KITS

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Serving Customers Worldwide