The Future in Underground Mining

- **Zero Emissions**
- **Low Maintenance cost**
- **Low Operational cost**
- **Less Downtime**
- **Good R.O.I.**

The Toyota Land Cruiser 70 Series & Toyota Hilux are the most common used light vehicles in mining worldwide.

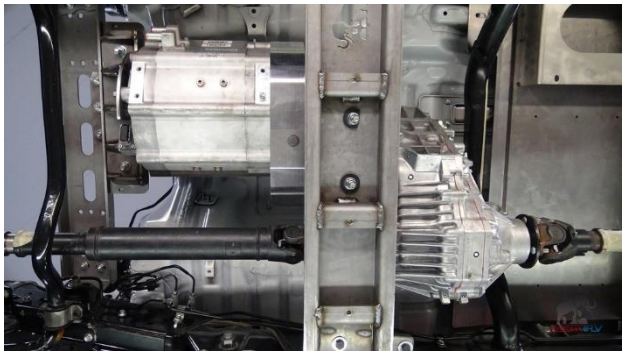
The heavy duty frame and powertrain have proven to survive in these rough environments and the basic design makes the Land Cruiser & Hilux the ideal base for special build conversions needed for the different trades inside the mines. However the standard Land Cruisers & Hilux with diesel engines cannot meet future emission standards.
But health, safety and clean air are a big part of the challenges faced in underground mining and for this it is obvious that the days are just about over for the diesel powered Land Cruiser & Hilux.
Converting the Land Cruiser & Hilux into battery powered 100% electric vehicles was a logical step to make.

We transform the Land Cruiser & Hilux into the Tembo 4x4 e-LV, in The Netherlands. The Tembo 4x4 e-LV is available as complete vehicle and soon as DIY conversion kit for local assembly.

The Tembo 4x4 e-LV is available in the following models:

- e-LV76 5drs Station Wagon
- e-LV78 3drs Hardtop
- e-LV79 single & double cab
- e-LV71 2drs short wheelbase
- e-LV Hilux single, Xtra & double cab
- LHD or RHD (Australia & South Africa only)
- Standard or complete Turn-Key solutions

The digital instrument cluster enhances the Tembo 4x4 e-LV operator experience.



Drive Line presentation

Driveline

The original Land Cruiser engine, gear & transferbox are removed and replaced by the E-motor fitted on a newly designed Tembo 4x4 1:3 reduction gearbox in combination with a genuine Toyota full-time 4x4 transferbox.
This combination eliminates engine oil changes, no clutch & gearbox repair and no winding up from the front drive line what will save CV-Joints and drive much smoother when cornering. The E-motor has a huge braking capacity of 60kW taking over 90% of the vehicle braking saving the standard service brakes.
All components are treated for high corrosion resistance.

The Battery

The specially designed for this purpose Lithium-Ion Graphite/NMC(G-NMC) battery is a modulair design controlled by a BMS(Battery Management System) and is watercooled and can be heated for sub-zero areas.

The battery housing is heavy duty and water- and dustproof. For better weight distribution the battery pack is divided in 2 packs with one fitted in the front motor compartment and one in the back of the chassis replacing the diesel fuel tank.

Battery capacity

- Capacity 28-42kWh
- Max. Voltage 449.4V
- Nominal Voltage 390.6V
- Minimum Voltage 342.4V
- Peak discharge 460A
- Specified cycles 8000 @80% DoD (Depth of Discharge)
- Specified cycles 4500 @100% DoD (Depth of Discharge)

The battery system is designed with the highest level of safety in mind and meets the electrical safety regulation ECE R100

Charging

- The 1 phase / 15kW charger is onboard so no need for a new, bespoke infrastructure.
- Charging time @240V/32A 2hr from 20% to 80%
- The E-Motor recuperates energy upto 22kw back to the battery driving down an incline while braking at the same time.
- For the North American market a vehicle charger feeder 600/480VAC to 410VAC is available

Technical Data

Electric Power (Max./ Cont.):	95kW / 60kW
Motor Torque (Max./ Cont.):	250Nm / 165Nm
Max. Torque on wheels:	1866Nm
Maximum speed On-road:	110 km/h
Cont. speed Off-road @15%:	35 km/h
Max. Gradeability:	45%
Range:	80-100km

Certified Quality

Our company is ISO9001:2015 certified and the Tembo 4x4 e-LV meets the Machinery Directive 2006/42/EC.
In cooperation with TÜV Nederland.
Our engineers also follow the Canadian GMSG & CMIC Recommended Practices for Battery Electric Vehicles in Underground Mining Guideline