



RHAM
EQUIPMENT

The Toyota Landcruiser Project

BEST EQUIPMENT UNDER THE EARTH

Our Believe Structure

STRATEGY
DELIVER COMPETITIVE
RETURNS AND SUSTAIBLE
VALUE



Teamwork: We are committed to a teamwork environment with an integral support system.

Integrity: We demonstrate honesty and fairness towards our stakeholders, suppliers and employees

Passion: We share a passion and enthusiasm for our products, people and our successes

Excellence: We strive to do our best in everything we do

CORE VALUES



Rham Vision & Mission



VISION:

To become the market leader where innovation, safety, excellence and affordability can be realised.

MISSION:

Our mission is to provide first-class quality and innovative mining equipment and support services in response to our customers' needs.

This is achieved through continuous improvement in order to meet the ever-changing needs of our customers.

Rham values the commitment, skills, attitude and effort of its employees which is essential for the success of the company.

The organisation believes that by maintaining a healthy business relationship with its customers, suppliers and employees it will result in further growth, success and future prosperity of the organisation.



Rham Enterprise Status



A Mining Charter III Preferential Procurement & Supplier Enterprise Development Contributor



RHAM Equipment is a level 3 BBBEE Contributor



Internationally accredited ISO 9001 Certified Quality Systems



A LEGEND

REBORN **ELECTRIC**

RUNE



HUBER AUTOMOTIVE AG & RHAM EQUIPMENT
Zero Emission Vehicles



100% ELECTRIC

HUBER

LAW CRUISE



RHAM
EQUIPMENT

100% ELECTRIC

Electric LDV Project Scope

The project was initiated in September 2021 the scope was to determine the viability of converting the current LDV fleets to electrical driven units and going forward the purchasing of new electrical surface and underground LDV units. Both the low-profile units (stopping width -2m) and the cruiser configured electrical LDV's had to be designed with a standard and modular Battery Pack and Powertrain system that was easily maintained and reliable.



Electric LDV Specifications and Benefits

Specifications:

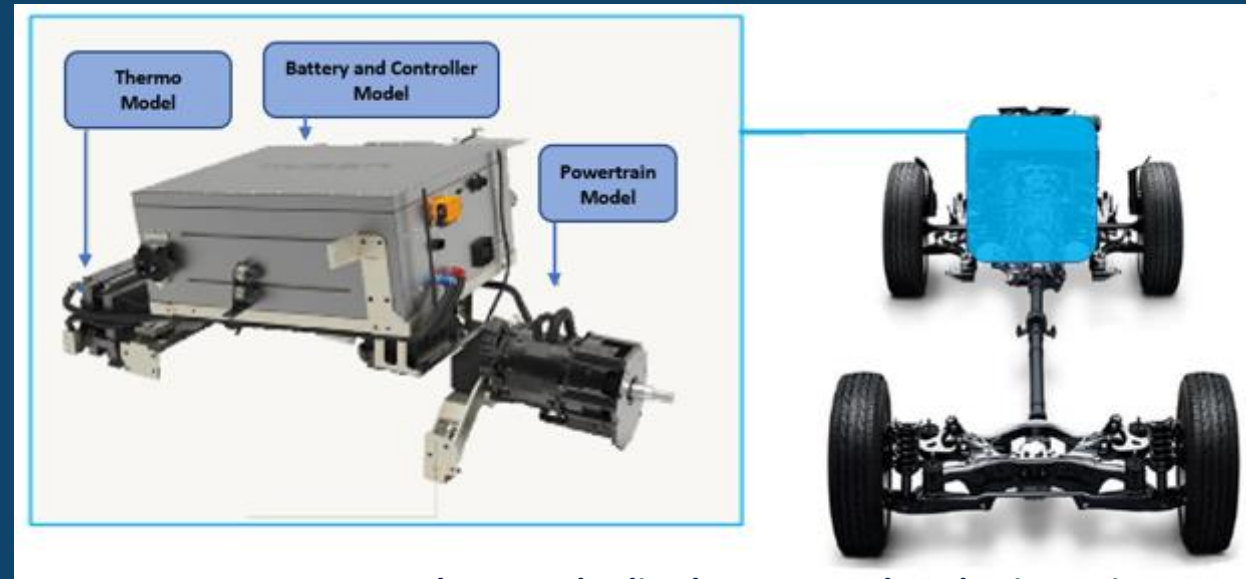
- Driving range + 100 km per shift
- Power consumption 22-30 kWh/100 km
- Fast charging period: < 1 h
- Standardised charging port
- Highest gradeability: up to 45 %

Benefits:

- Low maintenance cost
- Improved underground ventilation conditions
- Low operation costs - using electricity instead of fuel
- Reduced brake wear due to electrical recuperation
- Standardised battery pack and drive units

The Huber electrical LDV system is a modular system that can be installed into any Land Cruiser 7 series without any major modifications. It comprises of 4 main components:

- Battery and Battery Management System
- Powertrain
- Universal Charging System
- Thermal Management and External Transformer System



RHAM Huber Standardised Battery Pack and Drive train

Powertrain

The Powertrain consists of BOSCH Power Electronics, Electrical Drive unit and Gearbox/Transmission

BOSCH POWER ELECTRONICS

Max Power	90kW
DC/DC-converter	12 V / 2.5kW
Voltage	12 V / HV up to 400 V
Weight	10 kg



BOSCH E-DRIVE

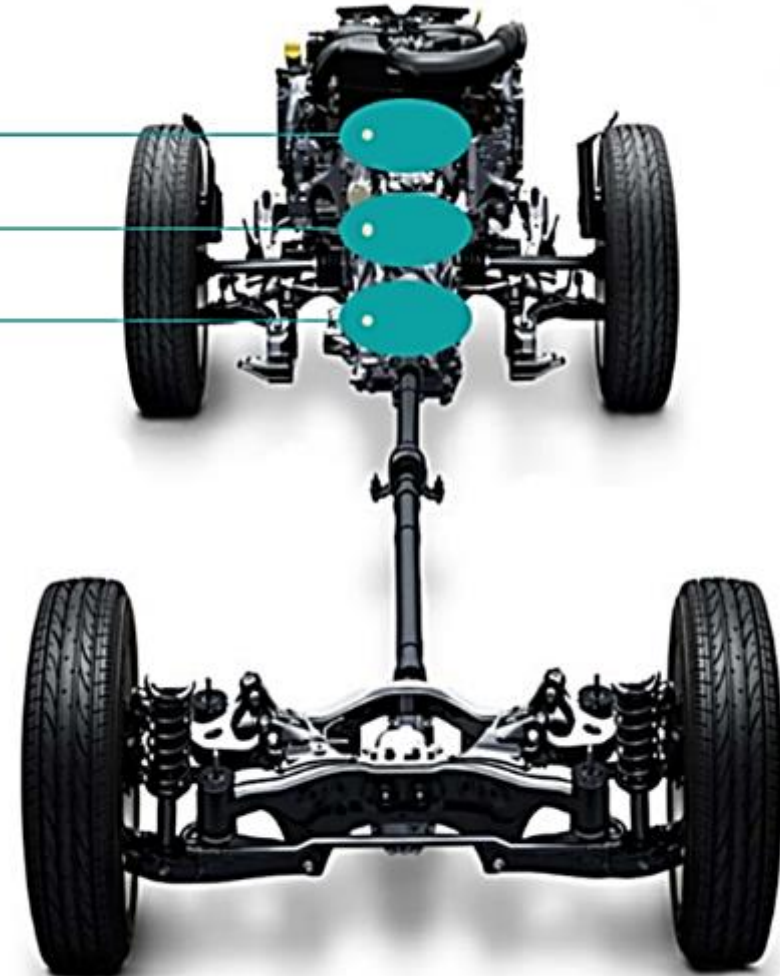
Power (max / cont.)	90 / 60 kW
Torque (max / cont.)	200 / 90 Nm
Weight	31 kg



BOSCH GEARBOX

Planetary Gearbox - high efficiency - maintenance free

Gear ratio	$i = 3.086$
Torque with gearbox	615 / 275 Nm
Weight	17 kg





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Thank You

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