



# BATT MOBILE EQUIPMENT PTY LTD

BME220, 20T BEV INTEGRATED TOOL CARRIER / WHEEL LOADER

12-14 MARTIN DRIVE, TOMAGO, NSW 2322  
E: [BMESALES@BATTMOB.COM.AU](mailto:BMESALES@BATTMOB.COM.AU)  
P: 02 4028 0401

# 1. Overview

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## 1.1 Introduction:

BME220 full electric 20 tonne Integrated Tool Carrier. Building on proven technology BME is enabling companies to adopt EV technology at affordable prices through delivering the extensive safety, operational and productivity benefits by eliminating diesel particulates, reductions in noise, maintenance and ventilation with increased speed and reliability.

## 1.2 Key Features:





- ✓ 20 tonne Integrated Tool Carrier
- ✓ 6 tonne rated load capacity wheel loader
- ✓ Luxury lined and fully sealed A/C cabin.
- ✓ ROPS/FOPS Certified Cabin
- ✓ Quick hitch system fitted to machine
- ✓ Li-Ion KREISEL (John Deere) battery pack - 730V nom
- ✓ Patented KREISEL *Electric Immersion Cooling Technology* - unsurpassed lifetime, superior safety and ultimate performance with best-in-class thermal management
- ✓ Combined Charging System (CCS2) compatible, *Ultra Fast EV Charging* available, with up to 150kW - approximately one hour charge time



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## 1.3 Product Benefits.

Issues	Impact of Electrification	Industry Application			
 <ul style="list-style-type: none"> <li>Diesel equipment has a significant amount of moving parts which are costly to service and maintain compared to Battery Vehicles.</li> <li>Cost to charge a battery is <b>\$35, as opposed to \$540</b> to refuel the equivalent equipment.</li> </ul>	<ul style="list-style-type: none"> <li>✓ EV's can extend useful life of assets by up to 5 years.</li> <li>✓ EV engines have 80% less parts yielding greater efficiency compared to diesel equipment (c.95% efficiency vs c.35% efficiency).</li> <li>✓ Significant reduction in running costs.</li> </ul>	Mining	Construction	Waste & Recycling	Agriculture
 <ul style="list-style-type: none"> <li>Mining vehicles account for <b>30% to 50% of the total direct greenhouse gas emissions</b> at a mine site.</li> <li>Globally, mine hauling diesel-powered trucks emit over <b>68 million tonnes of CO<sub>2</sub></b> a year.</li> </ul>	<ul style="list-style-type: none"> <li>✓ 100% reduction in scope 1 &amp; 2 emissions<sup>1</sup></li> <li>✓ 26% reduction in all emissions.</li> <li>✓ 40% ventilation cost reduction.</li> </ul>	Mining	Construction	Waste & Recycling	Agriculture
 <ul style="list-style-type: none"> <li>Diesel exhaust fumes emit <b>diesel particulate matter</b> (DPM) which increases risk of developing long term health problems.</li> <li>3.5 healthy years are typically lost to <b>noise pollution</b>.</li> </ul>	<ul style="list-style-type: none"> <li>✓ EVs emit very low levels of heat, noise and vibrations, resulting in a cooler and safer working environment.</li> <li>✓ Reduced medical expenses and workers compensation claims</li> </ul>	Mining	Construction	Waste & Recycling	
 <ul style="list-style-type: none"> <li>The main drivers of ventilation requirements are diesel emissions and the <b>heat generated by diesel equipment</b>.</li> <li>Cooling system required to <b>moderate temperatures</b> in mines, largely caused by diesel engines.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Reduced energy consumption via replacement of diesel-related infrastructure.</li> <li>✓ Switch to a fully electric mobile fleet results in a 40% to 50% reduction in ventilation demands.</li> </ul>	Mining	Construction		

<sup>1</sup>Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources and scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling  
Source: Battery electric vehicles – facilitating low-carbon mines; State of Play: Electrification; Embracing the benefits of electrification; Electrification of Mobile Mining Equipment Can be Cheaper than Diesel

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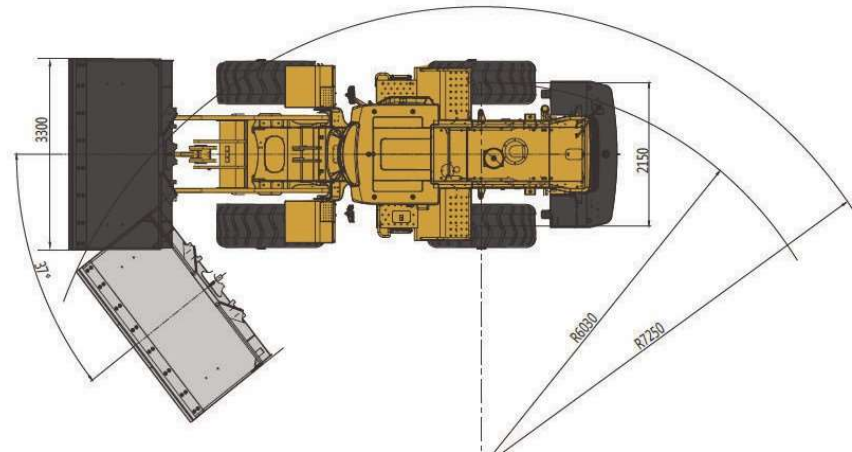
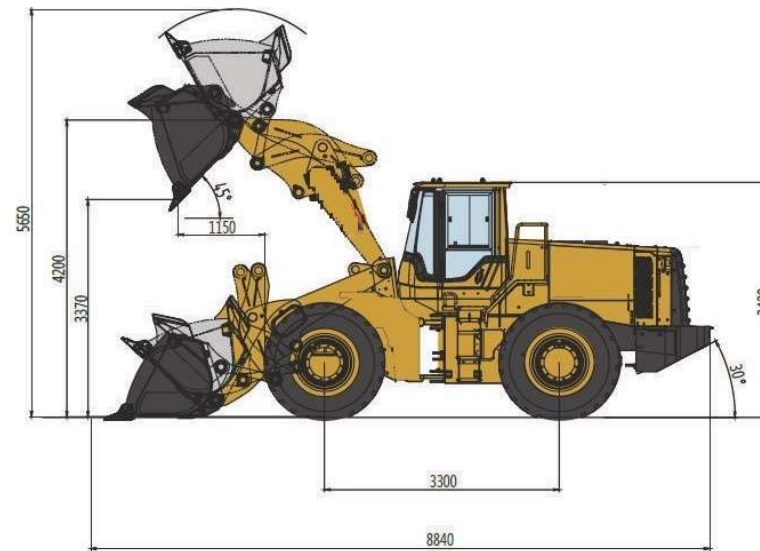
## 2. Technical Details

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### 2.1 Machine Specification

Parameter	BME220
Machine Weight – tare mass (no work tool)	20000 kg
Rated operating load	6000 kg
O/A length	8840 mm
O/A Height	3420 mm
Wheel centres	3300 mm
Track Centres	2150 mm
O/A width	2670 mm
Outside turning radius	7250 mm
Articulation angle	±37°
Speed – level (max)	1 <sup>st</sup> gear – 9 km/h 2 <sup>nd</sup> gear – 14 km/h 3 <sup>rd</sup> gear – 40 km/h
Rim pull	130 kN

NOTE: shown with bucket. Forks and other work tools available.

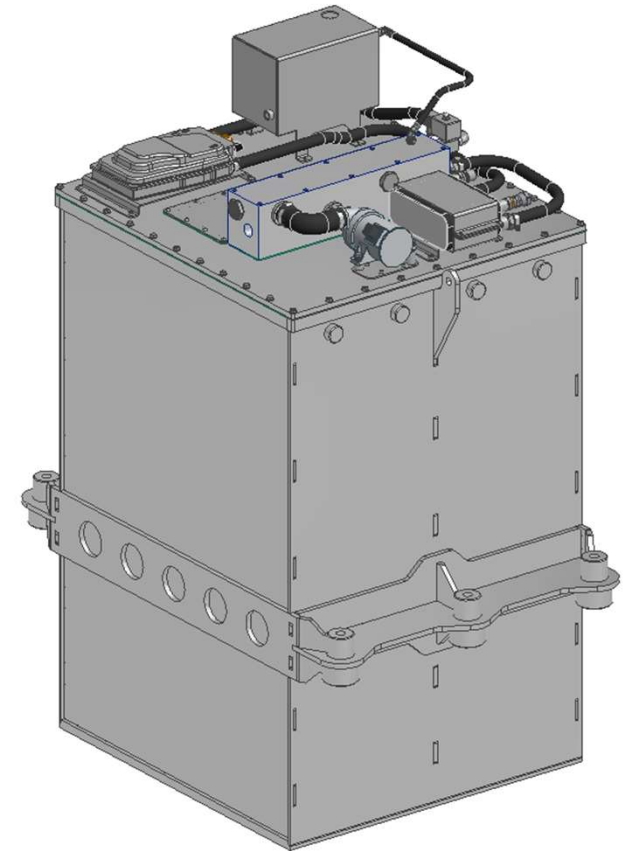
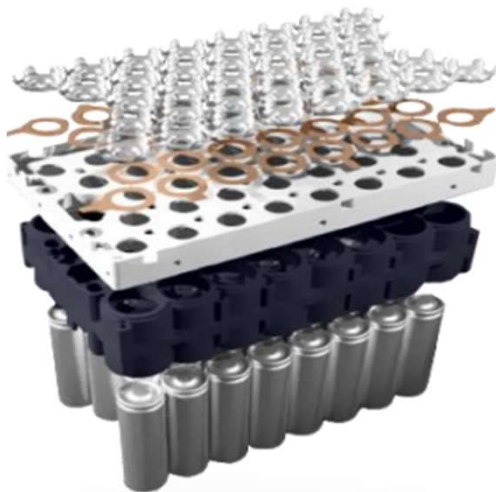


## 2. Technical Details continued...



### 2.2 Battery Specification

Parameter	Kreisel Battery (John Deere)
Cell technology	Li-ion
Nominal Voltage	730VDC
Energy Content	126 kWh
Nominal capacity	173.2 Ah
Expected life	3000 cycles



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## 2.3 Charging Specifications

### Option 1 – Fast Charging system

- Tritium RTM75 (75 Kwh).
- Approximately 2 hours charge time.

### Option 2 – Ultra Fast Charging system

- Tritium PKM150 Charging Station and Tritium PKM (300kW) Rectifier Unit.
- Approximately 1 hour charge time.
- One charging system can simultaneously charge two machines.

### Common Features:

- Small footprint, sealed enclosure and liquid cooled technology, reducing total cost of ownership by up to 37% over 10 years, compared to air-cooled systems.
- World-class reliability through an award-winning and field-proven architecture.
- Liquid cooled and fully sealed, IP65 rated charging station enclosure.
- Centralized AC/DC conversion, removing half of the power electronics failure surface from the charging station, which doubles the reliability of the power modules in the charging station.



## Modular, scalable, and the first of its kind

- Modular power units that are single-person operable so they can be easily changed in the field for faster maintenance and improved uptime
- Twin cables to simultaneously charge two EVs
- Built for any environment, thriving in temperatures from -35°C to +50°C (-31°F to +122°F)
- Engineered for safety, including standard cable management for hazard reduction
- Access to real-time data
- Custom branding

## Size Today, Scale Tomorrow

- Industry first DC microgrid design, creating a pool of shared power for the system's chargers to access.
- Exceed grid limits, by leveraging the pool of shared power to deliver higher charger availability and power output, with minimal capital investment.
- Field-proven modular components for world-class reliability and serviceability.