



## CASE STUDY

### Custom Lithium-ion Battery Packs for YUTONG 12T MINING LOCOMOTIVE

With 80-100T Loading Capacity

Learn How Frey's Lithium-ion Battery Benefits the Mining

## THE PROBLEM

Rich metals are stored in the far north of Silingrad, Inner Mongolia, where mining is huge. **Yet temperatures can be low as -30°C**, while **humidity underground gets as high as 90%**. This requires a stable battery that has high IP level protection against water, humidity, and corrosion, as well quality performance.

Mining manufacturer Yutong Ming Equipment put a **12 ton electric weighted trolley locomotive** into mission, **transporting 80 to 100 tons of rocks daily**. A quality locomotive is crucial to keep the project going and meet the deadline.

Previously, Yutong were using flooded lead-acid batteries. These would lose charge or discontinue in the middle of the day. Much time and effort was wasted in getting backup battery packs replaced— not to mention the daily hassle of watering the batteries and monitoring the acid levels, taking at least 8 hours to charge. Every 14 months, the whole battery packs needed to be replaced.



## SOLUTION AND RESULT

As of then, Frey New Energy was the only lithium battery solution that had MA certification. In order to be put on mining equipment for underground application, Yutong reached out to Frey. Frey learned the system and what they needed, then designed and made the custom built **192V500Ah (96KWH)** battery pack.

A **2 hour charge will last for a full 5 hour operation**, and they **no longer needs to work on switching the backup battery**. It **saves workers a great load of time**. Huge cost was saved, and they **don't need to replace any battery in 5+ years**.

### Built to Last

Constructed with Frey's high-power output cell, it's extremely durable and long-lasting, with a cycle life of  $\geq 4000$  times

### High Capacity and Productivity

Frey battery-driven vehicles running move efficiently, hauling material faster than their lead-acid driven counterpart.

### Extremely Safe

Frey's custom lithium packs for mining are all MA approved and explosion-proof

### Lower Operational Costs

No more underground ventilation, no more annually replacing new batteries