**Sustainability Below The Ground**

**Freudenberg Battery Power Systems provides MacLean with the power to transform underground mining**

**Midland, Mich. (USA), October 26, 2021. Freudenberg battery companies XALT Energy and Freudenberg Battery Power Systems have forged a successful relationship with MacLean, the** **largest Canadian-based mining equipment manufacturer, to further the use of clean, battery-electric energy to power mobile equipment used in underground mines.**

Freudenberg Battery Power Systems’ XMP76P battery sub-pack, part of its XPAND Modular Pack portfolio, is providing safer, more cost-efficient, zero-emission muscle to power MacLean’s EV-Series™ battery-electric mining equipment. MacLean chose the XMP76P to provide safe, more cost-efficient, zero-emission muscle to its EV-Series rock breakers, boom trucks, explosive loaders, bolters, cassette carriers, road graders, concrete trucks and sprayers and other mining equipment. The XMP76P also offers design flexibility and MacLean has configured more than 30 kinds of vehicles to accommodate the Freudenberg battery system.

“We are proud to support MacLean Engineering’s EV Series with a heavy-duty battery solution that meets the power requirements generated in a rugged, underground, mining environment,” said Nils Martens, Senior Vice President, Freudenberg Battery and Fuel Cell Systems. “The XMP76P checks all of the right boxes and is helping to make clean, safe, sustainable mining a reality.”

The XMP76P, part of Freudenberg’s XPAND Modular Pack portfolio, is powered by XALT Energy’s premium lithium-ion cell technology. MacLean will use several sub-packs in series to provide energy levels of more than 106 kWh per vehicle. Building on a successful, five-year history of offering battery-electric equipment to mining companies across Canada, MacLean is now focused – with premium batteries from Freudenberg – on expanding its diesel-free, fleet options to customers around the world.

**A Unique Juncture**

“As concerns about climate change and increasing CO2 emissions drive much of the world to embrace battery-electric powertrains, the mining industry finds itself at a unique juncture,” said Patrick Marshall, Vice President Product Management at MacLean. Demand for the ores and minerals that support the development of emission-free, electric vehicles and machinery are increasing. However, without a shift to carbon-neutral mining operations the increased emissions from the extraction of these resources could potentially offset any environmental gains.

MacLean launched its EV Series product line in 2016 and has been expanding the portfolio ever since. In 2021, MacLean added a heavy-duty, articulated shotcrete sprayer and a grader designed for the harsh realities of underground mining to its battery-electric offering. Importantly, the benefits of all of MacLean’s battery-powered vehicles go beyond environmental objectives.

**A Treasure Chest of Benefits**

Electrification of hard-rock deep-mining machinery comes with plenty of benefits – a veritable “treasure chest of good news stories” noted Marshall.

“Electric equipment is quieter, eliminates diesel particulates and creates a healthier, less stressful environment for operators. It generates huge savings by lowering the cost of underground ventilation systems,” he said.

In addition, MacLean’s EV-Series is playing a significant role in helping the company’s mining customers meet emerging sustainability goals and secure ongoing investments.

“Many mining companies have committed to becoming carbon neutral by 2050 and some by an even more aggressive goal of 2030,” Marshall noted. “They want to score well on key Environment, Sustainability and Governance (ESG) performance indicators, which is increasingly important to investors. As governments set new CO2 emission standards in accordance with the Paris Accord, the mining industry is pushing hard to do its part.”

**A Winning Partnership**

With significant growth in this mining sector, MacLean reached out to Freudenberg for help. In short order, Freudenberg experts met with MacLean engineers to consider energy requirements, configurations, and battery support systems. They chose the XMP76P sub pack as the optimal powertrain solution and are putting several sub-packs in series to provide energy levels of over 106 kWh per vehicle.

The XMP76P sub-pack uses XALT’s 43Ah High Power cells in a 2p24s architecture to provide 7.6 kWh total energy. With 6C discharge and 3C charge capability, XMP76P is ideal for applications with high discharge power demands and regen capture. Each sub-pack contains Voltage-Temperature-Balancing boards (VTBs) that measure voltages of all 24 cell pairs, measures internal pack temperatures, and performs cell balancing. XMP76P is designed for use with XALT’s Battery Disconnect Unit (BDU) and Master Control Unit (MCU) through the I/O port.

The sub pack’s variable bulkhead accommodates customized electrical and cooling interfaces, and its active liquid cooling system maintains ideal cell temperatures that respond quickly to increases in power demand and ambient (environmental) temperatures.

Marshall said. “We are really happy with the performance of the Freudenberg battery, the road map for the Freudenberg battery, the response and support we receive from the company’s technical sales and the fact that we now have a continental supplier chain for our electric vehicles. We see huge growth potential with this partnership.”

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**About XALT Energy and Freudenberg Battery Power Systems**

XALT Energy, LLC, and Freudenberg Battery Power Systems, LLC, are battery-electric technology companies owned and operated by Freudenberg Sealing Technologies. XALT Energy specializes in the design and production of long-life, heavy-duty lithium-ion battery cells for rugged applications. Freudenberg Battery Power Systems applies its expertise to the development, production, assembly and service of advanced, heavy-duty battery systems that power some of the world’s most for demanding industries including truck and bus, marine, construction and mining. Together with Freudenberg, these companies offer commercial customers the best battery-electric technology and systems available on the market today. For more information, visit:[**www.xaltenergy.com**](http://www.xaltenergy.com/)and[**www.fbps.com**](http://www.fbps.com)

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