

BATTERY-POWERED PIONEER

How rechargeable batteries are central to one mining company's business



The rear of the machine can be detached to install another energy module in less than 15 minutes

The mining industry, historically associated with high energy consumption and pollutant emissions, is undergoing a transformation. Environmental and regulatory pressures are pushing industry players to adopt cleaner and greener solutions. It was with this in mind that French mining equipment specialist Aramine began to develop its range of battery-powered machines, an initiative that was aligned with its sustainable development strategy.

The French company, set up almost 50 years ago, is a key player in the underground mining sector worldwide – it has developed expertise in technological innovation, environmental sustainability, and operational performance. Recent advances have included the design of electric cable machines, then battery-powered machines, since the company has recognised that electrification of the mining machine fleet represents a major step forward. This shift towards electric solutions also marks a significant turning point for the mining industry more generally, combining energy efficiency, carbon emissions reduction, and improved working conditions.

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FIRST BATTERY-POWERED MACHINE

In 2016, Aramine's teams launched the L140B LHD loader, the French manufacturer's first battery-powered machine. With a tramping capacity of 1.3t, this machine has a major advantage: the energy module at the rear of the machine, including the batteries and their chargers, is completely detachable in less than 15 minutes with a unique hot swap: the Quick Replacement System. The batteries can therefore be recharged close to any power source without the need for an expensive fixed installation. With an operating time and recharging time of four hours each, a machine with two energy modules can operate without interruption.

THE L440B LHD LOADER

Using their expertise in designing larger diesel mining machines, as well as all the technology included in the L140B, Aramine's engineers designed the L440B LHD loader, the second battery-powered machine in its range for small and medium-sized sections of underground mines. The product offers a tramping capacity of 4.5t.



The L440B battery-powered LHD, coming in a few months, with a 4.5t tramping capacity

more than three times that of the L140B. The first units are due to leave the technical centre in France over the coming months.

Aramine's battery-powered machines are designed to operate in the most demanding underground environments. Their electric motors offer a number of advantages – first, they significantly reduce CO₂ emissions, thereby improving air quality in mines. According to the European Union's ADEME CO₂ emissions factor, each L440B saves 438t of CO₂e, over 8000 hours of use compared with its diesel equivalent, leading to a reduction of 17kg of CO₂e per hour of use.

Additionally, these machines reduce noise pollution and heat, helping to create a more pleasant and safe working environment for operators.

With cutting-edge battery technologies, these machines can operate for extended periods without interruption, reducing the need for frequent recharges leading to increased productivity and reduced operating costs. In addition, battery-powered machines generally require less maintenance than their diesel counterparts since they have fewer

moving parts, which reduces the risk of mechanical failures and maintenance costs. Finally, downtime is minimised and the machines can remain operational for longer, maximising their efficiency and profitability.

As well as designing battery-powered machines, Aramine is improving the life cycle of its batteries with much consideration of how they can be reused. Since mines are often located in isolated areas, renewable energy is ideal for facilitating the transport of electricity to them. Aramine therefore offers its customers a solar station for recharging L140B batteries. This solution is particularly useful in areas with high levels of sunshine. •

For more information visit www.aramine.com

Aramine's eShop

In line with its 'pioneering spirit' and demonstrating its resolute focus on the digital transition, Aramine launched its eShop a few months ago. The shop, available via shop.aramine.com, offers 850,000

computerised spare parts references for all types of mining machinery. Sales at the shop are rising steadily, and saw a particularly good performance in the first quarter 2024, thanks to the renewed confidence of customers. Feedbacks have been that they appreciate the



'company's responsiveness and efficiency', according to Aramine.

Aramine's warehouse, from which all orders placed on the eShop are shipped worldwide