



Aramine's partnership with Tysilio delivers solar power stations to isolated sites

SUSTAINABLE SMARTS

Aramine's loaders have been designed with advanced energy management and predictive maintenance for a low-carbon future

Electric and battery powered machinery is taking centre stage as mine operators work towards reducing their reliance on fossil fuels. Mining equipment specialist Aramine is one company that has made significant strides in developing electric and battery-powered machinery. Its loaders, such as the L140B and L440B, are engineered for underground mining, where confined spaces and air quality pose unique challenges. These machines address emissions concerns while enhancing operational performance.

The loaders have been designed to be compact and manoeuvrable and so provide efficient navigation

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The L440B loader, launched in 2024, exemplifies advancements in battery technology, offering improved autonomy and performance with a 4.6-ton tramming capacity

in challenging terrains. They have also been designed to operate quietly, reducing noise pollution and creating a safer environment for miners. The company explained that the modular energy module at the rear of the machine, allowing battery swaps in under 10 minutes, is one of the most salient features of the loader since it minimises downtime and facilitates the seamless electrification of mining sites.

The L440B loader, launched in 2024, exemplifies advancements in battery technology, offering improved autonomy and performance with a 4.6-ton tramming capacity, according to the company. The success of the L440B loader confirms the effectiveness of the company's

strategy and drives efforts to expand the product range, supporting mining companies in their goal to lower carbon emissions.

ADVANCED ENERGY MANAGEMENT AND PREDICTIVE MAINTENANCE

The equipment integrates an energy management system that optimises power usage in real-time. These systems not only reduce energy waste but also extend machinery lifespan by preventing overuse.

Predictive maintenance features are another critical element of the loaders. By detecting potential mechanical issues before they escalate, these systems minimise downtime and repair costs. A spokesperson from Aramine argues that this aligns with the industry's drive for cost-effective, efficient operations and ensures consistent productivity.

RENEWABLE ENERGY SOLUTIONS FOR REMOTE OPERATIONS

One of Aramine's most innovative collaborations is with Tysilio, to introduce solar-power stations to remote mining sites. These containerised solar kits deliver 100% renewable energy, enabling the charging of electric equipment without the need for diesel generators.

The stations are easy to deploy without extensive groundwork, making them suited to isolated locations. They also help to reduce operating costs and prevent around 100 tons of CO₂ emissions annually compared with traditional diesel-powered systems.

ECONOMIC AND ENVIRONMENTAL BENEFITS

Aramine's initiatives are a 'win-win for both the economy and the environment', according to the company. Electric machinery offers substantial savings by lowering fuel expenses and reducing maintenance needs compared with



Close-up of the detachable energy module at the rear of the machine, which houses batteries for four to five-hour autonomy

diesel-powered alternatives.

Environmentally, these innovations help mining companies meet increasing regulatory and societal demands for sustainable operations. The company's transition to cleaner technologies is a significant step toward minimising its environmental impact.

PIONEERING CIRCULAR ECONOMY PRACTICES

In addition to developing energy-efficient machinery, Aramine is exploring ways to extend the lifecycle of its equipment components. For instance, batteries that are no longer suitable for mining operations can be repurposed for secondary uses, such as powering homes or offices.

This approach supports a circular economy, reducing waste and further enhancing sustainability. By coupling battery-powered machinery with renewable energy sources like solar stations, the company says it provides 'a holistic solution to modernise mining practices'.

The L440B battery-powered mining loader, launched in 2024, with a tramming capacity of 4.6t

EXPANDING DIGITAL SERVICES

Aramine's Smart Parts e-shop is a platform that aims to introduce a standard exchange system for energy modules, simplifying replacements and reducing costs for customers. This digital service underscores Aramine's commitment to adapting its long-standing expertise to contemporary needs.

A VISION FOR SUSTAINABLE MINING

As the mining sector navigates economic and environmental challenges, Aramine remains at the forefront, championing innovations that combine energy efficiency with operational excellence. From pioneering electric loaders to developing renewable energy solutions and circular economy initiatives, the company is reshaping mining for a more sustainable future.

"We are proud to lead the way in responsible mining," says Marc Melkonian, co-president of Aramine, and in charge of the equipment division. "These innovations are only the beginning. The enthusiasm from our customers inspires us to push boundaries and create more impactful solutions." •

For more information visit:
www.aramine.com





Aramine

NEVER STOP MINING



L440B MINING LOADER

MAX CAPACITY, ZERO COMPROMISE:
4.6 TONS, EMISSION-FREE*

Discover the perfect blend between performance and eco-responsibility: the L440B features a fully removable energy module at the rear, containing the LFP batteries & on-board charger. Changing batteries is now quicker than filling the fuel tank.

- ✓ No changes required to mine infrastructure
- ✓ Battery swap in less than 10 minutes
- ✓ 4-5 hours autonomy



*while operating



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