



Atlas Copco WEDA electric dewatering pumps optimise lithium extraction process at Chilean mine

IMAGE SOURCE: Atlas Copco

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- Atlas Copco's WEDA D80N submersible pumps have doubled lithium extraction rates at a Chilean mine.
- The mine has reduced maintenance costs by 60% since installing the WEDA pumps.
- Lithium demand is projected to double between 2025 and 2030, reaching 3.8 million tons by 2035.
- The WEDA D80N pumps feature high chrome vanes and wear deflector technology, ensuring long-term performance and low total cost of ownership.

- The mine plans to further optimize extraction by scaling up with larger WEDA D100N pumps.

A mine in northern Chile has doubled its lithium extraction rate since installing **Atlas Copco's** WEDA drainage pumps. Operators at the South American mine wanted to improve their lithium extraction process and turned to Atlas Copco's distribution partner, TRILE, for expert advice and a reliable solution. In addition to optimising its process, the mine has also reduced its maintenance costs by 60%.

The importance of lithium

Lithium is crucial to global decarbonization and the energy transition. It is an essential component for batteries, such as those found in electric vehicles and energy storage systems. Demand for lithium is at an all-time high, with global demand expected to double between 2025 and 2030 to surpass 2.4 million metric tons. By 2035, demand is expected to reach 3.8 million tons.

In 2023, Chile accounted for roughly 24% of global lithium production, estimated at 44,000 metric tons. This is a more than 15% year-on-year increase.



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Improving the extraction process

Battery-grade lithium carbonate is produced by refining brine. Lithium extraction involves pumping brine from underground reservoirs to the surface and through a series of evaporation ponds. The brine level in each pond must be carefully controlled to achieve efficient rates of evaporation. Rapid evaporation is crucial to facilitating lithium's concentration, and shallower ponds have a faster rate of evaporation.

The Chilean mine was achieving brine depths of 25cm in its ponds using existing dewatering pumps but wanted to reduce this level to improve operational efficiencies and optimise its lithium extraction process. Those responsible of the mine approached Atlas's Copco's regional distribution partner, TRILE, to find the most suitable solution.

“We worked closely with our mining client to fully understand their requirements. Product reliability in reaching low brine levels was key,” said Enzo Altamore, Sales Manager at TRILE. “We have vast experience with Atlas Copco’s submersible drainage pumps and were able to design an optimal solution based on the WEDA D line for this application.”



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A robust and reliable solution

TRILE suggested the mine used Atlas Copco’s WEDA D80N submersible pumps as they incorporate state-of-the-art wear deflector technology to deliver best-in-class performance over a long lifetime. This pump is designed to minimise wear in its key components, which enables exceptional performance and a low total cost of ownership. The WEDA D80N features design innovations such as high chrome (55 HRC) vanes that,

combined with its solid-redirecting auxiliary vanes, protect the wear-resistant impeller, reducing operational downtime and significantly extending the model's average lifetime.

"The WEDA drainage pumps handle either clean or dirty water, even with small solids, with reliable performance and efficiency," says Pablo Romero, Sales Manager Dewatering Pumps South America at Atlas Copco. "The repairability of our products is also integrated from the design phase. This minimises downtime and reduces the environmental footprint, proof of our commitment to sustainability as a company."

The drainage pumps have been built to last with maintenance and serviceability top of mind. Thanks to the smart modular design and a unique sealing system, the pumps are among the most flexible on the market. Users can install the pumps themselves, easily carrying out inspections and maintenance, reducing downtime and associated costs.

The WEDA D80N model has a maximum pumping height of up to 40m, a maximum flow rate of 100l/sec, and can transport solids up to 12mm. Considering the challenges in the Chilean mine, it was decided that one pump would be installed in each pond, for a potential installation of 200 operative units.



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Achieving faster evaporation

Since installing the WEDA pumps, the mine has been able to reduce the level of the brine in the ponds to just 15cm, which enables faster evaporation and increased lithium production. The mine has also been able to reduce maintenance and associated costs by 60%.

“Throughout the process, we have maintained the objective of providing the best solution to our client’s needs. Our knowledge and experience in mining, as well as Atlas Copco’s expert technical support, allowed us to deliver a solution that was not only successful but also exceeded the client’s expectations. Aligning our objectives allowed us to make a difference,” explained Enzo Altamore.

“The mine operator has been so impressed with the performance of these submersible units that it is now looking to further optimise the extraction process by scaling it up with the larger WEDA D100N pumps on site too,” says Pablo Romero. “The WEDA D100N has a maximum pumping height of up to 42m with a maximum flow rate of 280l/src. The technical support that we have been able to provide in conjunction with TRILE’s commercial expertise has been essential to the project’s success.”

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