SULZER

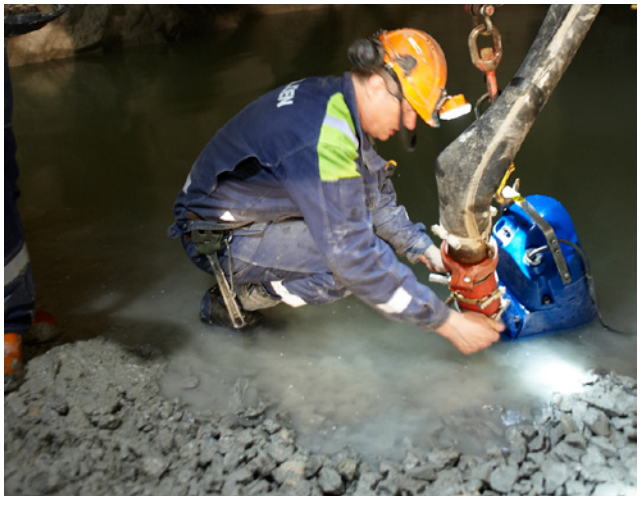
Dewatering solutions reduce costs for Boliden Garpenberg in Hedemora, Sweden

Boliden Garpenberg, which mines a complex ore containing zinc, lead, copper, silver and gold, is one of the world's most highly modernized mines. Productivity per employee is almost unequalled, and economy at the mine is always in focus. This is true even when it comes to the constant task of removing sludge and water. Since 2007, the mine has relied on Sulzer to care for its entire fleet of pumps – including those of previous suppliers – and has been among the first to adopt Sulzer dewatering innovations.

> *A mine needs lots of different kinds of pumps, and Sulzer's offering covers our needs in a good way. Sulzer really acts as a sounding board for us. Whenever we build something, whether small or large, Sulzer is involved.*
>
> **Reidar Ericsson, Mine Service Technician, Boliden Garpenberg**

The Sulzer difference

- Sulzer has cooperated closely with Boliden Garpenberg since 2007 and cares for the mine's entire pump fleet.
- Robust Sulzer equipment endures not only the tough mine environment, but also tough handling by mine workers.
- Built-in intelligence in submersible drainage and sludge pumps XJ/XJS prevents loss of capacity due to connection errors and provides early warnings that allow planned service at lower cost.
- A comprehensive service agreement with Sulzer ensures a stable pump fleet.
- Valuable information, statistics and advice from the Sulzer team give the mine tools for optimizing its pump installations.



The challenge

Boliden Garpenberg has a dual approach to achieving economy. One aspect is reducing individual costs, the other is making the mine's processes more economical as a whole. Dealing with pumping challenges plays a role in both.

Pump handling

Rough pump handling has always been associated with cost. "One thinks of how the pumps are handled underground on their way down the ramp to operations, and how they look sometimes when they come back up again," says Reidar Ericsson, Mine Service Technician at Boliden Garpenberg. "When the pumps are dragged backwards for blasting and loading – that's where the expensive problems start."

Pump setup and status

An additional cost factor, especially for mobile pumps, is whether the pumps are properly installed and in good working condition. Pumps connected with improper phase order, for example, will start pumping but with the wrong impeller rotation, resulting in poor capacity. When this or an issue like a leaking primary seal goes unnoticed, problems can quickly escalate.

Pump service

Given rough handling and the harsh, abrasive conditions underground, pump service is an unavoidable part of mining operations. "Previously we did all the pump service ourselves," says Ericsson. "The pumps that couldn't be repaired were taken out of operation, and unfortunately they weren't always replaced." Besides stressing the importance of having working pumps readily available, Ericsson notes the value of getting information that can prevent pump breakdowns in the first place.

> *We recover the cost of AquaPlug the first time it shows us that a primary seal is failing. With that warning, we can lift out the pump and change the seal instead of having to totally renovate it when the secondary seal fails.*
>
> **Reidar Ericsson, Mine Service Technician, Boliden Garpenberg**

The solution

Since 2007, Boliden Garpenberg has been working closely with Sulzer to solve pumping challenges. In almost ten years of cooperation, Sulzer has supplied the mine with hundreds of dewatering pumps, including submersible drainage and sludge pumps XJ/XJS, which the mine was among the first to test. The mine also has a comprehensive service agreement with Sulzer, comprising not only Sulzer pumps but also those of other suppliers.

Reduced handling damage

Since introducing submersible drainage and sludge pumps XJ/XJS to the mine, Ericsson has noticed a decrease in the number of pump issues caused by rough handling. “I think transport damage has been more or less ‘built away’ in these pumps,” he says. “The crane of a telpher or pump car lifts the pumps into or out of a transport container before they’re moved on by truck, so we were used to seeing damage to electrical cables and other pump components. We were skeptical when we saw the advanced electronics inside the XJ/XJS pumps, but that sort of damage is now eliminated.”

Problem-free setup and early warnings

Ericsson is also impressed by the electronic intelligence associated with submersible drainage and sludge pumps XJ/XJS. For example, the pumps’ AquaTronic unit has put an end to capacity problems at startup by correcting for improper phase order. “Previously when there were problems, the first thing asked was, ‘Is it connected and rotating in the right direction?’” Ericsson says. “I don’t hear that question anymore, and today no one has to think about it.”

Ericsson also praises AquaPlug, a module that incorporates control and monitoring functions into the pump power line. “We have AquaPlug in all our fixed installations, and you can see the pump condition with the help of the lights on it,” he says. “AquaPlug warns us if there’s a primary seal going, which lets us plan the pump change in time – before the leakage makes its way to the starter and results in a much more expensive repair.”

Effective service and support for optimization

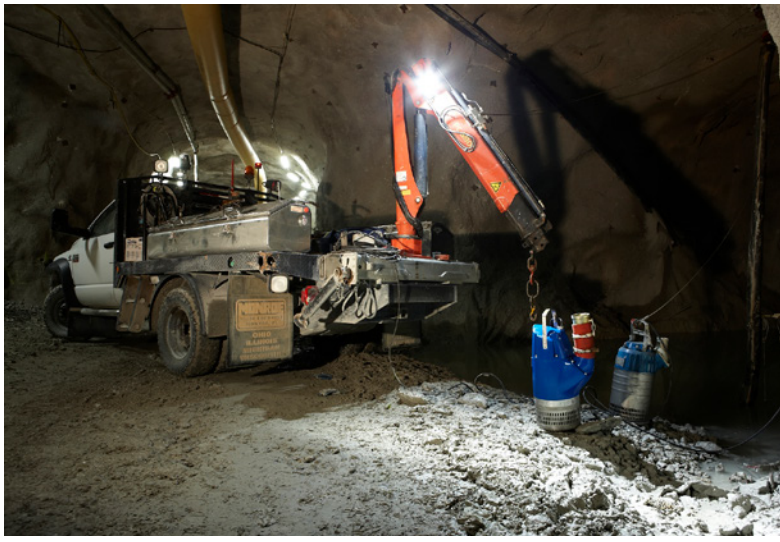
As part of the mine’s service agreement, damaged pumps from Boliden Garpenberg are sent to Sulzer’s workshop in Karlstad Sweden, even if the pumps are not branded Sulzer. Depending on the level of damage and the mine’s wishes, the workshop returns either a refurbished pump or a new Sulzer pump. “We have a certain store of pumps underground, and that number can never decrease,” says Ericsson. “If we turn in a pump that’s been run over, Sulzer will ask us first if we want to replace it with a new one, which means we still decide over our own pump fleet.”

The workshop also returns pump condition data and statistics, which Ericsson says is just as important as the return of serviced and repaired pumps. Detailed reports from Karlstad help Ericsson’s team identify problems related to location and installation factors, rather than the pumps themselves. “If we see that there are repeated problems with pumps in a certain place, it tells us that it’s likely a problem with the place, not the pumps,” he says. “That helps us reduce our costs by working with the site, for example by finding another pumping model that lets us pump at a more humane cost.”

Customer benefit

Overall, Sulzer pumping solutions and expertise help Boliden Garpenberg reduce costs associated with dewatering – both now and in the future. “We built a sludge pumping station a year and a half ago, and Sulzer helped us choose the pumps,” Ericsson points out as an example. “Those pumps are 1.80 meters tall, and Sulzer helped us design the installation in such a way that it would be easy to exchange them.” Pointing out that he himself is 192 centimeters tall, he adds, “That’s important when the pumps are up beyond your chin.”

“Sulzer is good to work with, that’s all there is to it,” Ericsson concludes.



Contact

mats.rosengren@sulzer.com