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BEAMEX CASE STORY

NORTHVOLT ETT
**CLOSING THE LOOP
ON BATTERIES WITH
RECYCLING PLANT**

Experience a better way to calibrate

NORTHVOLT ETT CLOSES THE LOOP ON BATTERIES WITH THE HELP OF THE BEAMEX CALIBRATION ECOSYSTEM

The demand for cleaner batteries to provide sustainable power for a wide variety of applications is growing quickly. Swedish battery cell producer Northvolt is closing the loop on batteries with its Revolt Ett battery recycling plant, currently under construction in Skellefteå, northern Sweden. Many of the processes in this state-of-the-art facility will rely on Beamex hardware and software to ensure accurate, traceable calibration.

Northern Sweden is a hotbed of green industrial activity, with billions of euros set to be invested in new green technologies in the coming years and the region boasting an abundance of low-cost, renewable electricity to power them. One of the region's rising stars is Northvolt, which established Europe's first homegrown gigafactory, Northvolt Ett, in Skellefteå. The plant delivers lithium-ion battery cells to customers at the forefront of the transition to electric vehicles. Northvolt Ett will eventually ramp up to a total capacity of 60 GWh – enough to power around one million electric vehicles per year.

Since 2020, Northvolt has been using a variety of Beamex technologies to ensure accurate, traceable calibration at its labs and in its production processes. These include the Beamex MC6 Advanced Field Calibrator and Communicator, Beamex calibration pumps for pressure generation, and Beamex CMX Calibration Management Software.

But manufacturing is only one part of Northvolt's story. The company recognizes that recycling is fundamental to building a sustainable battery industry, so in December 2019 it launched Revolt, its own in-house program for battery recycling. After successfully developing a battery recycling process based around hydrometallurgy, the company began constructing its Revolt Ett recycling plant alongside Northvolt Ett.

A WORLD-CLASS FACILITY TO CLOSE THE LOOP ON BATTERIES

Revolt Ett will house all the equipment and technology necessary to turn used batteries and battery production waste into raw materials. The plant will eventually recycle around 125,000 tons of battery materials per year, including production scrap from Northvolt Ett. When finished it will be the largest plant of its kind in the world, recovering lithium, nickel, manganese, and cobalt to support Northvolt Ett's target of 50% of its raw material needs coming from recycling. As a trusted partner, Beamex has been part of Revolt Ett's story right from the start.

One of the many vastly experienced experts charged with

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preparing Revolt Ett for production is Richard Porter, the plant's Instrumentation & Control System Supervisor. “I was somewhat familiar with Beamex from my work in Canada, but when I moved over to Sweden the name was everywhere,” he says. “I quickly learned that Beamex is pretty much the de facto standard for calibration equipment in Northern Europe. One of the things that brought this home to me was when I was recruiting new hires at Revolt Ett. Prospective employees were actively pushing their experience and knowledge of Beamex solutions on their resumes as a way to sell themselves,” he explains.

ACCURATE, TRACEABLE CALIBRATION SUPPORTING A CIRCULAR BATTERY INDUSTRY

“Scaling battery recycling while ramping up battery manufacturing capacity is at the core of Northvolt's plans to embed sustainability into the emerging European battery industry,” Richard continues. “With Revolt Ett, we will be enabling our battery business to become a circular one: an industry which recovers its products back from the market for recycling and circulates materials back into its production flows.”

Richard's primary focus is now on preparing the Revolt Ett plant to start production, and part of this preparation has been to scope out and purchase the new calibration equipment he sees as a critical part of the plant's success.

“The hydrometallurgical process we will use to extract metals from black mass – a powdered mixture of metals that are purified to recover the materials used to make fresh

batteries – is dependent on temperature, among other variables,” Richard explains. “As such, we need to be able to quickly and accurately calibrate a wide variety of equipment including resistance temperature detectors and thermocouples, as well as manage all the data that the



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At Revolt Ett, Richard and his team will use several different models of the Beamex MC6, including an MC6-Ex Intrinsically Safe model for hazardous areas and an MC6-T150 with a temperature dry block alongside a variety of Beamex calibration pumps. All calibration work at the plant will be managed using Beamex CMX software.

“For me, given Northvolt’s previous experiences with Beamex and the fact that the talent pool we are tapping into is already very familiar with the Beamex ecosystem, many of the decisions have been very easy ones,” says Richard. “In terms of accuracy, traceability, and ease of use Beamex solutions are a cut above the rest. It is also important that the Revolt Ett plant is aligned with the rest of Northvolt too with regard to calibration equipment and processes.”

GLOBAL SUPPORT AND EXPERTISE WITH A LOCAL TOUCH

In readying Revolt Ett for the start-up of production, Beamex’s expertise has been just as important as the hardware and software they are providing to the site. Tom Sonntag, Head of Beamex Nordics, worked closely with Richard to scope out the required solutions and how best to roll them out at the site to ensure the best possible results.

“Tom came over to tour the site and provide valuable insights on what exactly we would need and the calibration strategies we could follow. This kind of hands-on, personal

Northvolt Ett

CALIBRATION SOLUTIONS

- MC6 Advanced Field Calibrator and Communicator
- MC6-Ex Intrinsically Safe Advanced Field Calibrator and Communicator
- MC6-T Multifunction Temperature Calibrator and Communicator
- Beamex calibration pumps
- Beamex CMX Calibration Management Software

MAIN BENEFITS

- Accurate and traceable calibration supporting a circular battery industry
- Standardized and centralized calibration
- Global and local support and expertise

approach was extremely helpful for me,” highlights Richard. “Beyond that, once we had made the decision to go with Beamex the whole sales process was very easy, with everything going through one contact instead of multiple divisions. Plus, if I need technical support, parts, or even how-to videos for my team, they are all there in one place on the Beamex website or YouTube channel.”

STANDARDIZED, CENTRALIZED CALIBRATION BUILT BY BEAMEX

Beamex CMX Calibration Management Software is one of the key reasons Northvolt has remained a loyal Beamex client. With CMX, the technicians at Revolt Ett will be able to manage their instrumentation assets safely and execute calibrations efficiently. All calibration results will be permanently stored to maintain a full calibration history, and data will be easily available for analysis and reporting, as well as for generating calibration certificates.

Beamex’s LOGiCAL cloud-based software-as-a-service is another solution that Richard is keen to learn more about. “The ability to share a single, common calibration database has massive advantages for us, and we’re already building that in with CMX. LOGiCAL is definitely something we are keen to learn more about, particularly because of its versatility and scalability.”

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