Keller brings sustainable solutions to fossil-free steel mill

Luleå, Sweden

Keller is using sustainable techniques to help build an electric steel mill in northern Sweden – a development that’s expected to cut the country’s CO2 emissions by 7%.

The project

The €4.5 billion project in Luleå will replace a traditional fossil-fuel blast-furnace process with a cleaner electrified one powered by local hydropower plants. Not only will the new mill be more environmentally friendly, but it will also boost productivity, enlarge the product portfolio and create cost savings for owner SSAB.

The development is a flagship European project for Keller, which opened an office in Luleå in 2024 to grow in what is now an investment hotspot. Despite its remote location less than 70 miles from the Arctic Circle, Luleå has seen billions of euros pour into infrastructure projects ranging from hydropower plants to harbour and rail developments.

Keller has been involved in the steel mill project from an early stage, with SSAB needing advice on how the land could be built on in an effective and practical way.

An alternative to concrete piles

“The client was looking for an alternative to concrete piles, as the amount needed was proving to be cost, time and logistically prohibitive,” says Robert Thurner, Project Director, Technical Office and Special Projects. “The site is on land reclaimed in the 1970s and suitable for soil improvement techniques including vibro stone columns, dynamic compaction and deep soil mixing. While these aren’t widely used in this part of the world, they are part of Keller’s global toolkit.”

To demonstrate the techniques’ feasibility on a project of this scale, Keller was first commissioned to carry out a test field towards the end of 2024. Even under tough winter conditions with temperatures around -20ºC, the works – involving the top-feed vibro technique with water – were successfully finished before Christmas.

From there, the Sweden team, with support from experts across the world, provided recommendations to the client and their consultants to help shape the most effective and efficient scheme.

The main site for the mill is around 1km2, so the soil improvement works have required huge resources. More than 200 Keller personnel worked on the project in 2025, which will scale up to 300 as the project targets completion later in 2026.

Global strength, local focus

“The project is the perfect example of Keller’s motto of global strength and local focus, as we’ve brought in teams from Austria, Poland, Germany, Italy, Hungary, Bulgaria, Romania, Finland, Norway, the UK and Ireland,” says Per. “It would have been impossible to recruit the amount of experienced people we needed if we just used the local market.”

As of early 2026, the project is around 30% complete, but with the general contractor only now coming on board, Keller expects additional works to be added at a later stage.

“This project hasn’t just been hugely important for Keller Sweden – it’s also been one of the biggest recent projects for our Europe and Middle East Division,” says Robert. “It’s shown that through early involvement and fair cooperation we can help clients optimise designs, reduce costs and speed up the construction process.”

Per adds: “By offering sustainable, cost-effective soil-improvement techniques we can also help green projects such as this one cut CO2 emissions through cement reduction and less requirement for transportation. This flagship project for Sweden and Keller is also a flagship project for sustainability.”

Project facts

Owner(s)
SSAB

Keller business unit(s)
South-East Europe and Nordics

Main contractor(s)
confidential

Solutions
Bearing capacity / settlement control

Markets
Industrial

Techniques
Dynamic compaction
Vibro stone columns / Vibro replacement