First modern and largest high-temperature storage in the steel industry

Tata saves 22,000t CO2 with Kraftblock's energy efficiency project

Jamshedpur, India/Sulzbach, Germany.

Kraftblock, a worldwide leading manufacturer of green Thermal Energy Storage (TES) and Tata Steel Limited, one of the world's largest steel producers, have commissioned a thermal storage system. Kraftblock's thermal storage has been implemented at the Jamshedpur plant in the Indian state Jharkhand. The system captures waste heat from the sinter cooler of Sinter Plant 3, stores it efficiently, and reuses it in the sinter process. By recovering high-temperature waste heat, the technology reduces energy use and emissions in one of steelmaking's most energy-intensive steps, serving as an important lever for decarbonisation.

The storage system has 20 MWh capacity and can store waste heat at a maximum of around 500 °C. This allows for the reduction of 22,000t CO_2 per year in saved emissions and improves energy efficiency and stability of operations. Additionally, the sintering process is accelerated by the system as Tata Steel stated in their annual report. The plant has been in operation since May 2025 and won the "Deployed Solution of the Year" award in Tata Steel's Total Quality Management (TQM) program in December 2025.

The waste heat originates from the cooling section of the sinter plant, where hot pieces of sintered iron ore are cooled after being heated to extremely high temperatures. The heat is collected and filtered before the stream with a maximum of 1.5 MW is being taken to two Kraftblock thermal storage units. When required, the stored heat is released back to the sinter plant. The system has a maximum discharge capacity of 1.8 MW.

"At Tata Steel, we are committed to decarbonize the steel production. Our Jamshedpur sinter plant's Kraftblock thermal storage system demonstrates how alternative energy solutions can capture and reuse waste heat from one of the most energy-intensive stages of steelmaking. Using waste heat enables us to significantly reduce our fossil energy consumption and emissions while improving process efficiency. This project is a significant step towards a greener, more energy and cost-efficient steel industry", says Mr. Subodh Pandey- VP Technology, R&D, NMB and Graphene.

In May, the construction of the plant, including the filter, ducting, chimney and Kraftblock storage unit, was completed and the system was successfully commissioned. Several months later, the system is performing reliably and contributing to energy savings and emission reductions at the Jamshedpur sinter plant, as promised.

“The project at Tata Steel shows the great feasibility of heat recovery and storage in the steel industry. There are many use cases in steelmaking, from furnaces to flaring. With our sustainable Thermal Storages, we progress to support the steel industry in their efforts to become more energy- and cost-efficient”, says Martin Schichtel, CEO & Co-founder of Kraftblock.

According to the Integrated Report from 2024/25 from Tata Steel: "Waste Heat Recovery (WHR) and Utilisation is a significant contributor in improving process efficiency and delivering cost savings. As part of its efforts to explore breakthrough WHR solutions, Tata Steel engaged with Kraft Block GmbH, a German start-up that offers eco-friendly and modular thermal energy storage systems.”

Kraftblock’s Thermal Storage Systems can eliminate volatility in renewable electricity to power industrial processes or recover waste heat in heavy industries to improve energy efficiency. Especially in steel, but also in non-ferrous metals and ceramics, waste heat from above 350 °C can be utilized. In the steel industry, high-temperature storage systems of Kraftblock can go up to 1,300 °C and are a pathway to optimise energy use and avoid emissions by saving fossil fuel. Other industry-scale projects are currently being implemented.

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Read more about Thermal Energy Storage Systems here: www.kraftblock.com