

BEAR turns heads with groundbreaking STEKLARNA HRASTNIK technology

Slovenia's STEKLARNA HRASTNIK unveils its BEAR project, featuring a hybrid regenerative furnace that achieves 40 percent electrical melting share whilst maintaining 170-ton daily capacity in a seismic development for container glass production worldwide.

A BREAKTHROUGH IN GLASS MANUFACTURING

In a significant leap forward for the glass manufacturing industry, Steklarna Hrastnik is set to demonstrate a revolutionary hybrid end-fired regenerative furnace that promises to transform how container glass is produced. The BEAR (Batch-fed Engineered Air-fuel Resource) project represents the first major innovation in regenerative furnace technology in over 150 years of its long history. The new hybrid furnace, to be installed at the Steklarna Hrastnik facility, will achieve an unprecedented 40 percent electrical melting share while maintaining a substantial daily glass production capacity of 170 tons. This breakthrough development directly addresses one of the industry's most pressing challenges: reducing carbon emissions while maintaining high production efficiency. Traditional end-fired regenerative furnaces, which currently account for 75 percent of global container glass production, have long been the industry standard despite their high carbon footprint and reliance upon fossil fuels. While all-electric alternatives exist, their limitations have prevented widespread adoption across the container glass sector. The BEAR project bridges this gap by combining the energy efficiency of electric furnaces with the operational flexibility of conventional regenerative systems.



ENVIRONMENTAL AND ECONOMIC IMPACT

The environmental impact of this innovation is remarkable. By increasing the electrical boosting share from the conventional 5-10 percent to over 40 percent, the new furnace will cut natural gas consumption by more than half. Over its first decade of operation, the facility will avoid 0.1 Mt CO₂ equivalent emissions - enough to offset the entire household greenhouse gas emissions of Slovenia's Zasavje region, home to more than 20,000 residents, for over a year.

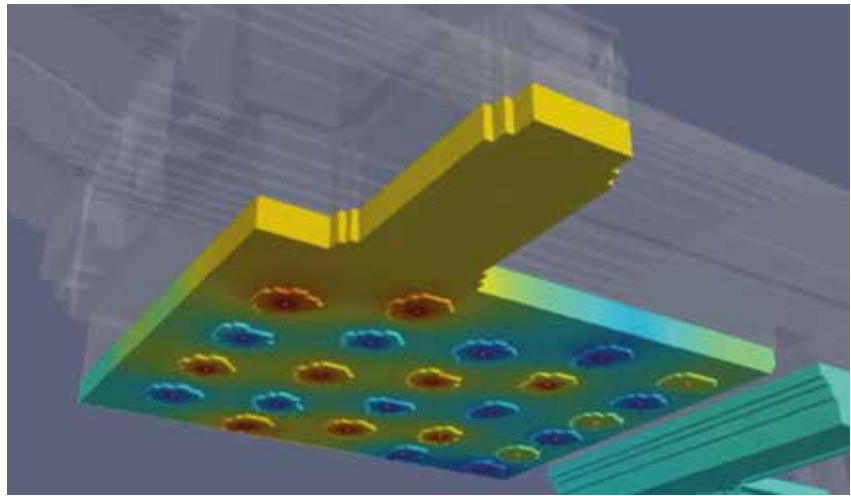
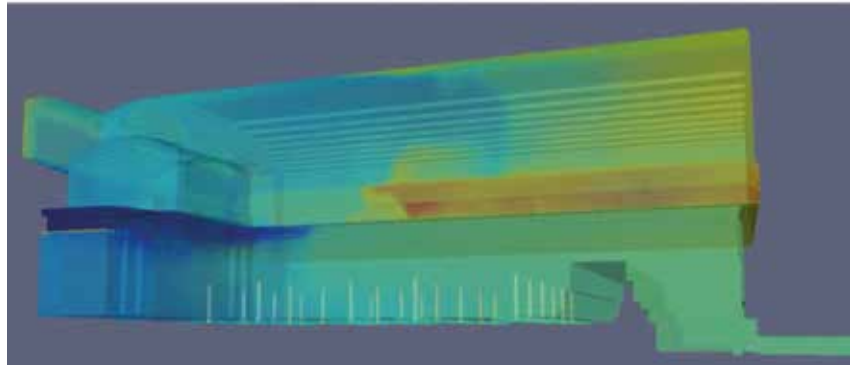
Beyond environmental benefits, the BEAR project carries significant economic implications for Zasavje, a region in transition from coal-dependent industry. As a major employer accounting for approximately 5 percent of local jobs and over 10 percent of the region's GDP, Steklarna Hrastnik's investment in sustainable technology demonstrates how traditional industries can evolve while maintaining and potentially expanding its workforce.

IMPLICATIONS FOR THE FUTURE

The project's innovative approach to energy integration holds promise for the entire container glass sector. By aligning glass melting processes with renewable energy sources, including direct coupling with local renewable supply, the hybrid regenerative furnace technology could significantly enhance the industry's energy security and resilience. The BEAR project's comprehensive design incorporates advanced features including regenerative heating through alternating heat exchangers, sophisticated control systems for optimal combustion conditions and enhanced insulation materials. These elements all work in concert to maximize efficiency while minimizing environmental impact - setting a new standard for glass manufacturing technology. As the glass industry faces increasing pressure to reduce its environmental

BEAR

HYBRID REGENERATIVE GLASS FURNACE



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footprint, the BEAR project offers a viable pathway toward sustainable production without compromising on quality or capacity. Here's why its success could potentially catalyze similar transformations across the sector, demonstrating how traditional manufacturing can adapt to meet contemporary environmental challenges - all while maintaining industrial competitiveness. ■

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