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Primetals Technologies to Modernize Kardemir's Meltshop with Unified Process Optimization System

- **Fully integrated process optimization system for all major steelmaking units at Kardemir**
- **Modernization improves data consistency, process execution, and operational transparency**
- **Important milestone in Kardemir's digitalization roadmap**

In January 2026, integrated steel producer Kardemir, based in Karabük, Türkiye, awarded Primetals Technologies a contract to modernize the automation environment across its meltshop. The project includes modernizing the automation for three LD converters (BOFs), four single ladle furnaces (LFs), and one vacuum degasser (VD). Each converter is designed for 120-ton heats.

Unified Digital Backbone for Meltshop Operations

The new Level 2 process optimization system will integrate all BOF, LF, and VD units into a single digital architecture from Primetals Technologies, connecting metallurgical, operational, and planning data in one environment. This "steelmaking backbone" provides operators and metallurgists with a shared interface and standardized procedures, improving data consistency, process execution, and transparency across shifts and production units.

Previously, Kardemir relied on different systems and processes across the meltshop, which limited optimization efforts and introduced inconsistencies.

Improved Stability, Energy Efficiency, and Steel Quality

With this modernization, Kardemir aims to reduce reblows in the BOF shop, lower energy usage in secondary metallurgy, improve yield, and boost overall productivity. Sefa Çetinkaya, Operational Technologies Manager at Kardemir, expects significant improvements in steelmaking performance with the unified Level 2 environment.

"We are excited to embark on this significant Level 2 project with Primetals Technologies as part of our steel plant's digital transformation. These advanced automation solutions will enhance data integration across our facility, making our production processes smarter, more efficient, and more sustainable. I am confident this partnership will deliver excellent results."

This project represents a significant milestone in Kardemir's digital transformation and follows Primetals Technologies' recent automation upgrades to sinter plant operations at the same plant.

About Kardemir

Kardemir, also known as Karabük Demir Çelik, is one of Türkiye's leading integrated steel producers and a major employer in the Karabük region. The company's operations span ironmaking, steelmaking, and rolling. Kardemir is currently expanding its digitalization initiatives across several production areas. The steel producer has collaborated with Primetals Technologies on multiple modernization projects.

Key Facts: Fully Integrated Process Optimization Systems

The "steelmaking backbone" solution fully integrates all process optimization systems, supporting consistent data usage and transparent performance tracking across all aggregates.

Features include material and grade databases, shift and user management, production planning, and web-based reporting tools for all production units. At Kardemir, the backbone will integrate these Level 2 systems:

- **BOF Optimizer:** Features dynamic process models, end-of-blow calculations, heat tracking, alloy control, and cost-oriented material calculations.
- **LF Optimizer:** Enables closed-loop control of alloy additions, deoxidation, desulfurization, inclusion shape control, and temperature correction. It stabilizes heat treatment, reduces energy consumption, and supports predictable tap-to-tap times.
- **VD Optimizer:** Uses advanced thermal and metallurgical models for vacuum treatment. Its dedicated degassing control module calculates the removal of nitrogen and hydrogen in real time. The system delivers faster vacuum cycles, stable heat treatment, and improved steel cleanliness.



Kardemir ordered a unified digital architecture from Primetals Technologies to optimize the processes of its entire meltshop. Copyright: Kardemir

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A “steelmaking backbone” from Primetals Technologies provides operators and metallurgists with a common interface and standardized procedures across shifts and production units. Copyright: Kardemir

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