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## Tonggang Optimizes Ladle Furnace Performance with Primetals Technologies Revamp

- **New electrode arms boost power output and clamping precision while reducing energy consumption**
- **Downtime minimized compared to conventional electrode arm installation**

Primetals Technologies has recently completed a ladle furnace upgrade at Tonghua Iron and Steel (Tonggang) in Jilin Province, China. The project included the manufacture and installation of a complete set of three-phase electrode arms, as well as commissioning services. The newly installed copper-clad electrode arms increase power output, improve clamping precision, and maximize service life. At the same time, they reduce energy consumption and minimized downtime during installation.

Electrode arms are a critical component of the ladle furnace, transmitting electrical energy, regulating the arc, and ensuring precise electrode clamping. After twenty years of operation, Tonggang's original equipment required replacement. Tonggang selected Primetals Technologies as its supplier based on a long-standing partnership. The company placed its first ladle furnace order with Primetals Technologies 20 years ago and has experienced the durability and efficiency of the equipment firsthand.

### Lightweight and Durable

Primetals Technologies' copper-clad electrode arms are lightweight yet highly rigid and are designed to withstand harsh meltshop conditions. Their double-layer composite structure and integrated water-cooling system further enhance durability. As a result, electrothermal efficiency is significantly improved compared to conventional tube arms, while replacement downtime is greatly reduced.

Conventional arms often require grinding, drilling, or other adjustments due to issues such as baseline deviation. In contrast, Tonggang was able to complete the arm exchange in approximately six hours, from dismantling to commissioning.

The copper-cladded composite arms were manufactured at Primetals Technologies' Changxing workshop, which offers short lead times and advanced copper-to-copper welding for high-current equipment. This ensures efficient energy transfer to the liquid steel surface and eliminates overheating.

### About Tonghua Iron and Steel

Tonghua Iron and Steel Group is the largest state-owned steel enterprise in Jilin Province. Established in 1958, Tonggang was restructured in July 2010 through a merger with Shougang Group, becoming Shougang's main steel production base in Northeast China. The company operates 14 wholly owned subsidiaries and 7 holding subsidiaries nationwide, forming a large integrated steel enterprise

encompassing mining, beneficiation, sintering, coking, ironmaking, steelmaking, and rolling. Tonggang's main products include angle steel, channel steel, rebar, hot-rolled round steel, high-speed wire rod, and seamless pipes, which are widely used in construction, transportation, power, and water conservancy projects.



New electrode arms from Primetals Technologies boost power output and reduces energy consumption at Tonghua Iron and Steel.

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