



MIDREX® HBI PLANT
LEBEDINSKY GOK III, GUBKIN, RUSSIA

SECOND MIDREX® HBI PRODUCTION PLANT FOR LEBEDINSKY GOK

MAIN BENEFITS

- Safe and clean ironmaking due to direct reduction MIDREX
- HBI production for the merchant HBI market
- Safer transport and storage of HBI compared to DRI
- An annual production capacity of 1.8 million metric tons of HBI
- Achievement of 100% of performance guarantee test parameters during first attempt

METALLOINVEST'S MOST IMPORTANT INVESTMENT PROJECT

As a result of the excellent experience with the LGOK II MIDREX plant supplied by Primetals Technologies and MIDREX and started-up in 2007, Metalloinvest decided to build a second MIDREX production plant for Lebedinsky GOK (LGOK) in Gubkin, in the southwest of Russia. The decision to order a second MIDREX plant was caused by the high availability of the first MIDREX plant and by the superior HBI quality. The new plant is one of the biggest HBI plants worldwide. Andrey Varichev, CEO, Management Company Metalloinvest: "HBI-3 Plant is Metalloinvest's most important investment project. The launch of the facility is strengthening the Company's position as the leading global supplier of HBI, the premium metallised raw material for high-quality steel production. The increase in HBI usage in the iron and steel industries also serves to reduce the sector's environmental impact: HBI production is the most environmentally-friendly method of producing iron from ore."

ENVIRONMENTALLY FRIENDLY IRONMAKING

The MIDREX direct-reduction process removes the bonded oxygen from pelletized iron ore at elevated temperatures by means of a reducing gas that is generated from natural gas.

Reduction takes place in a low-pressure reduction shaft by reduction gas that was generated by natural gas reformation and heating in a natural gas reformer. The iron ore pellets that are charged into the reduction shaft through feed pipes, are reduced to metallic iron by the reduction gas in counterflow, are discharged and finally briquetted to high quality HBI. Due to the utilization of natural gas (and not coke as reducing agent as in the traditional blast furnace route), the process is considered to be environmentally friendly. As a result, also carbon dioxide (CO₂) emissions are considerably reduced.



The reformer, transforming natural gas to reduction gas



LGOK III MIDREX HBI PLant

THE CUSTOMER

Name. Lebedinsky Mining and Processing Integrated Works (LGOK)

Location. Gubkin, Russia

Lebedinsky GOK belongs to the mining sector of Metalloinvest Holding, which has more than 62,000 employees.

Lebedinsky GOK produces high-quality iron ore and pellets. The company is not only operating the largest plant for the mining and beneficiation of iron ore in Russia and the CIS, it is also the only HBI producer in the region. An open-pit mine with proven reserves of 3.9 billion tons supplies the plant with iron ore.

SCOPE OF SUPPLY

- Raw material handling
- Reduction furnace incl. gas systems
- Reformer and heat recovery
- Natural gas treatment
- Briquetting system
- Product handling including storage yard and train station loading
- Water treatment
- Electrics, instrumentation and automation
- HVAC and fire protection
- Various steel structures
- Training and supervisory services for erection and commissioning

PLANT DATA

Annual capacity	1.8 mtpy
Reduction furnace inner diameter	7.15 m
Number of reformer bays	18
Nominal capacity	231 t/h
Nominal availability	7,800 hours
HBI metallization and Carbon content	min. 93% and 1.5% C
Raw material	100% LGOK pellets



Level 1 automation system

Primetals Technologies Austria GmbH

A joint venture of Mitsubishi Heavy Industries and partners

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