



MIDREX® HBI PLANT LEBEDINSKY GOK III, GUBKIN, RUSSIA

SECOND MIDREX® HBI PRODUCTION PLANT FOR LEBEDINSKY GOK

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

method of producing iron from ore."

impact: HBI production is the most environmentally-friendly

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 ENVIRONMENTALLY FRIENDLY IRONMAKING

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

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 reformer. The iron ore pellets that are charged into the 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

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

THE CUSTOMER

Name. Lebedinsky Mining and Processing Integrated Works (LGOK)

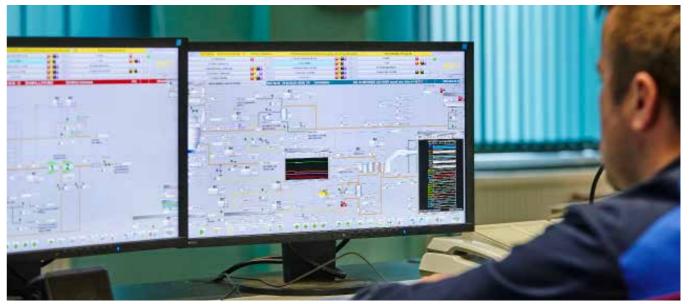
Location. Gubkin. Russia

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.

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

2

Primetals Technologies Austria GmbH

A joint venture of Mitsubishi Heavy Industries and partners

Turmstrasse 44 4031 Linz Austria

primetals.com

Brochure No.: T01-0-N295-L4-R-V4-EN

Printed in Austria

© 2020 Primetals Technologies Ltd. All rights reserved

The information (including, e.g., figures and numbers) provided in this document contains merely general descriptions or characteristics of performance based on estimates and assumptions which have not been verified.

It is no representation, does not constitute and/or evidence a contract or an offer to enter into a contract to any extent and is not binding upon the parties. Any obligation to provide and/or demonstrate respective characteristics shall only exist if expressly agreed in the terms of the contract.

These estimates and assumptions have to be analyzed on a case-to-case basis and might change as a result of further product development.

Primetals Technologies excludes any liability whatsoever under or in connection with any provided information, estimates and assumptions. The provided information, estimates and assumptions shall be without prejudice to any possible future offer and/or contract.

Any use of information provided by Primetals Technologies to the recipient shall be subject to applicable confidentiality obligations and for the own convenience of and of the sole risk of the recipient.

 $\label{primetals} \mbox{ Primetals is a trademark of Primetals Technologies Ltd.}$