



BLAST FURNACE NO.3
SSAB, LULEA, SWEDEN

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PROJECT HIGHLIGHTS

- Construction planning
- Controlled demolition
- Erection (including pre-installation of refractory lining to hot blast fabrications).
- Successful collaborative working with SSAB and other contractors
- Zero lost time accidents
- Furnace successfully retained the original profile
- Project completed within the short timescales outlined
- Fixed plant shut down duration of 75 days realised

THE CHALLENGE

With only one blast furnace on the site, the challenge was to reline the furnace and modify the hot blast system within a strict timescale on a turnkey basis, with no lost-time accidents.

OUR SOLUTION

The cooling system was upgraded with Primetals Technologies' anti-bending copper stove technology. Another notable innovation in the construction techniques employed by Primetals Technologies was the pre-fabrication of large sections of the hot blast main, including pre-installed refractories, to allow modular erection.

The plant shut down was planned for June 2015. Primetals Technologies were responsible for the construction and worked closely with SSAB and other contractors active on the site.

This turnkey project was completed with no lost time accidents – supporting Primetals Technologies approach to zero harm.

The furnace reline and hot blast system replacement were completed on time and taking over certificates were issued in August 2015.

The furnace, which had been running successfully since 2000, retained the original profile which had been developed by Primetals Technologies in 1998.

SCOPE OF SUPPLY

- Full detail engineering for blast furnace No.3 reline and hot blast system replacement.
- Supply of key equipment for blast furnace No.3 reline
- Supply of key equipment for hot blast system
- Demolition and erection
- Keeping warm of hot blast stoves



SSAB Lulea Blast Furnace No.3

FURNACE EQUIPMENT

- Minor shell repairs
- New carbon hearth
- New copper staves with patented anti-bending solution
- New cast iron staves
- New above burden probes
- Furnace refractory

HOT BLAST SYSTEM EQUIPMENT

- New ceramic burner
- New hot blast main fabrication
- New mixing chamber fabrication
- New hot blast system expansion joints
- New hot blast system refractory throughout
- Cold blast control and isolation valves

FURNACE DESIGN PARAMETERS

Average production	6,700 t/d
Peak production	7,000 t/d
Furnace hearth diameter	11.4 m
Furnace working volume	2,540 m ³
Furnace inner volume	3,003 m ³
Top gas operating pressure	1.50 bar g
Blast pressure at furnace	3.50 bar g
Normal productivity on inner volume	2.08 tHM/d/m ²
Normal productivity per hearth area	65.7 tHM/d/m ²
Number of tuyeres	32 off
Number of tapholes	2 off

SUMMARY

The shut down works proceeded to plan through the demolition and construction phases and completed on schedule.

The rebuild of the blast furnace has restored the availability and reliability for the future campaign.

The plant has shown excellent operating characteristics since returning to operation. The furnace performance acceptance certificate has been issued.

Primetals Technologies Ltd

A joint venture of Mitsubishi Heavy Industries and partners

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