

Total Competence

Comprehensive plant modernization



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Reliability, experience and expertise



A steel producer has carried out a comprehensive modernization project for a blast furnace plant, including the rebuilding and refurbishment of two steam-turbine-driven air blowers. Thanks to MAN PrimeServ's extensive modernization experience, the plant efficiency and reliability was improved significantly and the project was completed on time and within the budget.

Project goals

MAN PrimeServ was entrusted with the repair and modernization of the blast furnace machinery, including two steam-turbine-driven air blowers. The first phase of the project related specifically to the new blast furnace, supplied by others. The requirement was an increase in production capacity, together with a reduction in power thanks to increased efficiency. Plant operating conditions were to remain unchanged. The project was to be completed within 13 months from the date of order, whereby site work was restricted to a time frame of 14 weeks only. On completion, the plant should be fully operational without any interruption for a period of ten years, until the next major service.

The MAN PrimeServ solution

The objective of the MAN PrimeServ assignment was achieved by the modernization of the two steam-turbine-driven blast furnace blowers. For this purpose the first air blower had to be completely rebuilt and the second stand-by blower refurbished.

A significant increase in blower efficiency was achieved by reducing 17 compressor stages to 15 stages. The deliveries for the first blower included a new set of rotor blades, a corresponding new stator blade carrier with a modified flow channel. Additionally the complete control system was upgraded to the latest technology standards.

In addition to the work on the equipment, MAN PrimeServ also trained service and technical personnel on the modified equipment over a three week period.

Project results and customer benefit

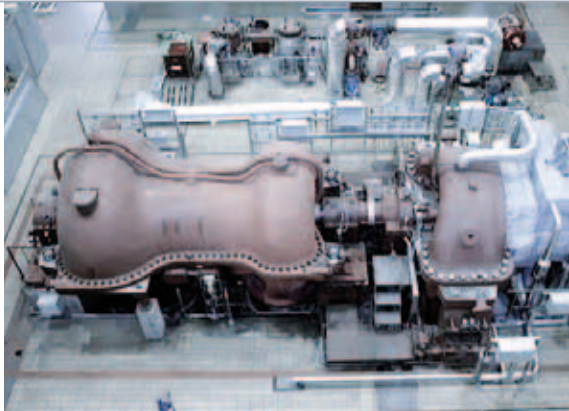
The disassembly and re-erection of the units was carried out without any difficulties. Due to the fact that at times up to 3,000 people were present on site, this in itself was a considerable achievement and required extensive and detailed co-ordination with all other contractors on site.

For the rebuilding and refurbishing respectively of the two rotors, including balancing and transportation, a maximum of six weeks was available. Considering the extremely short time frame, the extensive guarantees and the restricted availability of the equipment, a high level of process co-ordination was the key factor for the successful completion of this very demanding project.

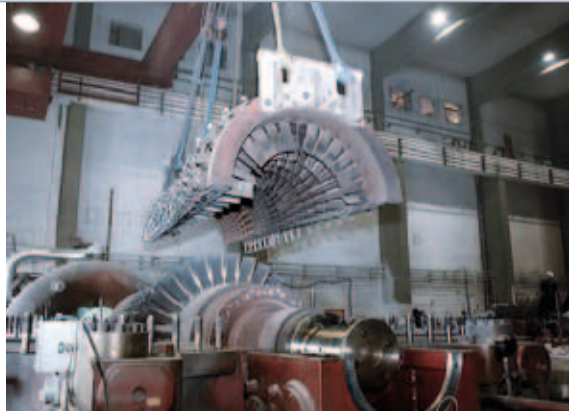
The modernization program has resulted in a major increase in plant efficiency resulting in a significantly reduced energy requirement.

The upgraded, state-of-the-art control system also ensures a substantial improvement in the operating performance and the plant reliability.

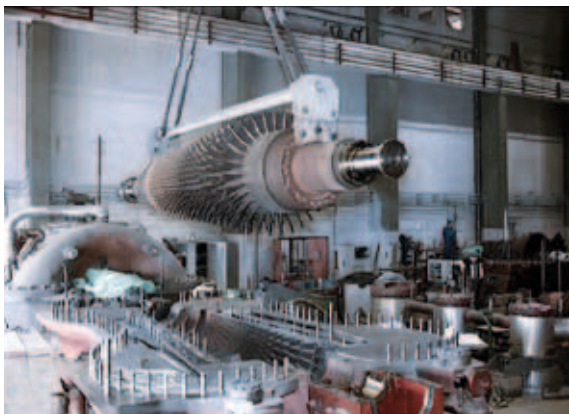
Thanks to detailed planning and close co-ordination, both within MAN PrimeServ and with the customer and other contractors, the entire project was completed on time, within the budget and to the user's full satisfaction.



Blast furnace plant



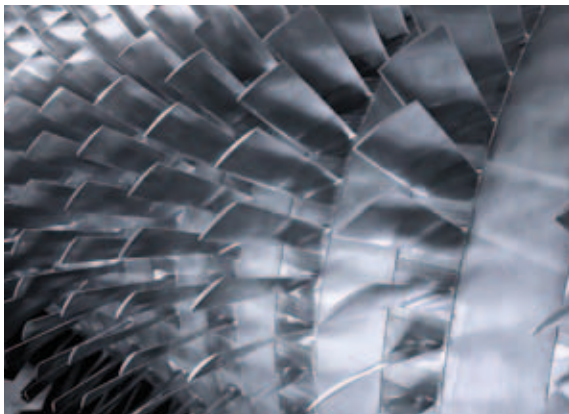
Blast furnace air blower (top view)



Disassembly of the existing stator blade carrier



Final check of the new stator blade carrier



New compressor rotor

Technical Data

		Before	After
Power (max)	kW	24,530	23,798
Volume flow (max)	Nm ³ /h	308,000	308,000
Suction pressure	bar	0.981	0.981
Discharge pressure	bar	5.5	5.5
Speed	rpm	4,570	4,570
Medium	-	Air	Air

Increased efficiency after revamp with two compressor stages fewer

