



Rotor on crane in machine hall, ready for replacing in turbine casing.



Rotor taken out of the pit in rotorshop.

Major Overhaul of a German-Design 100 MW Gas Turbine

A Sulzer Elbar Field Service team started the major overhaul of a German-designed 100 MW gas turbine on 21st July 2003. This turbine was manufactured in 1980 and has been operating in a power station in a city in southern Germany. This work represents the first turn-key major overhaul of this particular design of gas turbine by Sulzer Elbar.

Transportation of the rotor

Performing this work was a more complex logistical exercise than usual, because:

- Significant work was being performed simultaneously by others in a different section of the power station plant. This had the result of blocking off the area usually used for the de-stacking of the gas turbine rotor. Consequently Sulzer Elbar's engineers designed tailor-made fixtures to facilitate safe transportation of the rotor to the Sulzer Elbar workshop for overhaul.
- Construction work associated with the building of an adjacent, new power plant blocked the original access to the hall where the turbine was located. This necessitated a complex removal procedure.

Rotor overhaul in Sulzer Elbar's new rotor workshop

The opening of the new Sulzer Elbar workshop this summer was the culmination of a major planning, investment and construction project. This is a carefully-designed new building, with a high crane hook height, 120 tons gantry crane capacity and a pit which is specifically designed to accommodate the largest gas turbine rotors made. The removed rotor was carefully manoeuvred into the vertical position in the pit and de-stacked. All parts were then inspected and the required repairs carried out before the rotor was re-stacked.

Repair of the hot gas casing and other components

Sulzer Elbar performed a pre-inspection of this gas turbine in early May 2003. One of the findings of this inspection was that the hot gas casing needed extensive repair work. This also included the replacement of the inner barrel. All this comprehensive refurbishment work is also to be carried out at Sulzer Elbar's facility in Lomm.

All other parts of the combustion system stayed on site, the Elbar Field Service crew carried out all necessary

repairs and replacements. This meant weld repair of the mixing chambers and fixing and renewing of cooling rings. Additionally all tile clips and tiles in both the flame tubes were replaced. In Lomm, the specialists repaired the turbine buckets (rotor blades) and nozzles (stator vanes) and all were re-installed in the rotor and vane carriers.

Teamwork together with customer

Without the excellent cooperation between the customer and Sulzer Elbar it would have been impossible for this project to have progressed so smoothly. From the early preparation stages through to frequent on-site review meetings all those involved worked together openly and constructively. As a result the customer is very satisfied with the entire complex project – especially the amazing speed with which the rotor was removed under difficult logistical circumstances. The turbine was successfully started up again mid-October. This represents a very fast turn-around indeed.

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