SST600 Steam turbine overhaul and repair

A power plant , biomass CHP with a SST-600 steam turbine with condensing function for district heating - was in need of repair work after discoveries made during a turbine overhaul. It was while performing the annual borescope inspection when Energetic technicians discovered impacts on the rotor, seals and nozzles. A quick decision was made together with the customer to open the machine and investigate further the extent of the damages. It was concluded that the machine suffered from foreign object damage.

The rotor together with static parts was urgently shipped to the Energetic workshop in Stekene for refurbishment. Glass blasting of the rotor was made in order to inspect further. Inspections later showed that no cracks had developed from the impacts, making it possible to grind and polish to prevent the development of cracks in the future. A relatively less-cost solution. But the turbine was in need of extensive seal strip replacement due to the foreign objects travelling around in the steam path. Nozzles was also in the need of replacement.

Energetic was able to recover some of the foreign object material. And material analyze revealed the origin of the part. Locking pins from the control valve housing. Not safely secured during installation.

Later the machine was since years also suffering from steam leakage at the control valve spindles. A normal switch to new spindles and packing box parts did only solve the problem for about 2 months. Energetic was assigned to come with design modifications to cure this problem and keep the steam leakage away. In 2016 a new valve beam and spindle design was installed.

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