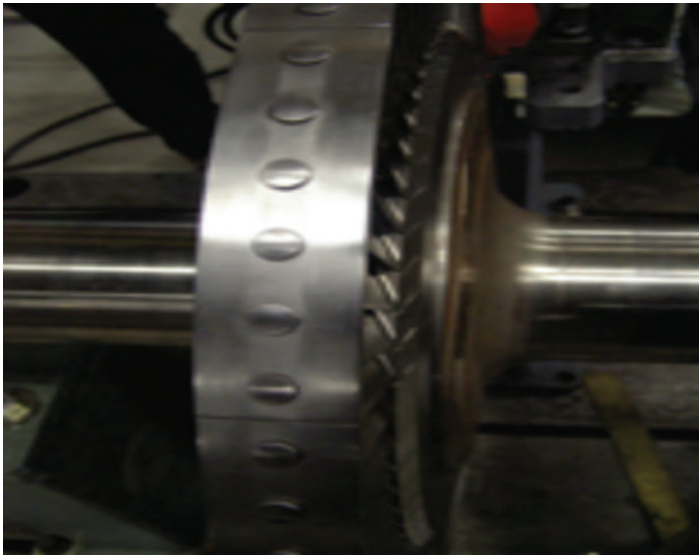


NITRIC ACID EXPANDER RERATE & OVERHAUL

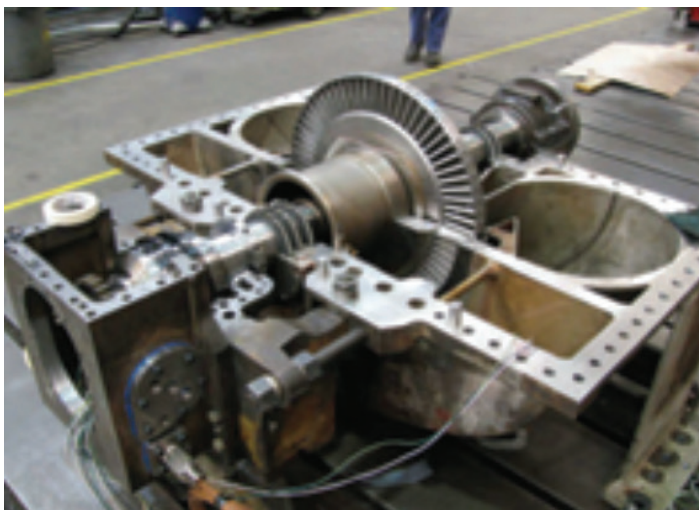
By Sydney Gross



As part of the supply of a nitric acid plant air train, RMS has rerated and overhauled a customer's single stage GE expander from 2600 hp to 4700 hp. The work was accomplished within a 10 day window at a shop local to the Georgia plant.

Starting in the beginning of 2008 with inspections and the customer's dimensional data, RMS was able to redesign the expander which remained in operation until the plant shut down in February of 2009. The redesign included a new flow path, tilt pad bearing retrofit and an electronic overspeed system upgrade. The customer's spare rotor was reworked prior to the shut down with new blades installed and automatic peened by RMS, redesigned thrust collar and a retrofit speed wheel/axial probe target.

The analyses that made the redesign possible included aerodynamic, structural, vibration and rotor dynamic lateral critical. Overhaul and rerate services accomplished during the outage included disassembly, joint milling and line boring, casing hydrotest, bearing housing remachining and reassembly. The expander was installed on a new packaged baseplate with RMS's AXL508 11000 hp axial compressor and a rerated and refurbished Elliott QV7 steam turbine. The train was started in March of 2009 and is part of an acid plant expansion.



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