

Major Overhaul of Critical Rotating Equipment at a Petrochemical Plant

In November 2006 Sulzer Hickham Indonesia was awarded a substantial order to perform a major overhaul of 9 machines consisting of 3 steam turbines and 6 large compressors all of different designs. The scope of this major overhaul was not limited to mechanical work but included instrument work and commissioning of the control system by a specialist.

This major overhaul represents a significant order for Sulzer Hickham Indonesia in the field service business.

The plant is one of the biggest petrochemical plants in Indonesia with an ethylene cracker, producing the raw material for the nearby polyethylene and LLDPE plants. This plant typically performs a turn around every four years and includes the disassembly of turbine and compressor casings and removal of the rotors for inspection.



9 machines all awaiting overhaul.

The customer awarded the order only four weeks prior the commencement date of overhaul. All scheduled work had to be completed within 27 days, working two shifts.

The job was a very challenging mission since it was carried out during the fasting month of Ramadhan.

Sulzer Hickham Indonesia provided a complete team with a total number of up to 160 men in order to meet the target delivery time. A team of local and international experts from the US, Australia, Europe and India was assembled and sent to site where they set about stripping down the units, removing the rotors from the casings, cleaning, incoming inspection of all of the parts, NDT inspection, setting valve rack on steam turbines, calibrating and testing the controls.



Preparation for upper casing removal.

The project also included some inspection and repair work which was performed at Sulzer Hickham Indonesia's workshop. During the inspection process, one turbine inner casing was found to have more eroded areas than anticipated and had to be replaced with the customer's spares. After checking the spare, the new inner casing needed to be machined for installation of the L-Ring. The machining was then undertaken and completed in Sulzer Hickham Indonesia's workshop.

One of the compressor rotors was brought to the shop for the repair of the shaft lock nut. Minor repair of the steam valves was also performed in the workshop. All turbine and compressor rotors were thoroughly



Disassembly of propylene refrigerant compressor.

inspected. It was decided to change out one turbine rotor with a spare since the rotor was found to be in a bad condition. The rotors were then installed and assembled into the casings. All turbine and compressor internal housings, including diaphragms, rotors, bearings and all split line bolts were assembled in the casings.

After the mechanical work was completed on the turbines and compressors, the turbine control panel and the governor and lube oil system were commissioned for testing and operation. The overspeed trip tests were also carried out.

The units were successfully started up and commissioned without significant problems including testing of all safety devices. All units are back in service and functioned exceptionally well within the promised time frame.

A great effort was made to ensure safety during the whole project. No incidents or accidents occurred.

Numerous other contractors were also involved in this overhaul. Sulzer Hickham Indonesia was awarded the best and safest contractor by the client during this major plant overhaul.

*Marlon Kipuw
Sulzer Hickham Indonesia*