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# Alstom cuts weeks off turbine testing time with ABB variable speed drive

A major manufacturer of steam turbines has cut the time needed to change its test rig set-up from six weeks to a few hours following the installation of an ABB variable speed drive (VSD).

Alstom Power of Rugby tests 1/10<sup>th</sup> scale steam turbine blades in a large pressure vessel. The vessel uses a compressed mixture of air and refrigerant gas to simulate steam and tests the components at low and high pressures.

Speed control of the DC motor to achieve the different pressures was achieved by means of gearboxes. The major problem was the time needed to change over from the low pressure to the high pressure testing. Steve Finch, project manager for Alstom, says: "The changeover involved replacing the gearbox of the motor so that it could drive the compressor to achieve high or low pressure as required. It also involved setting up scaffolding to allow us to lift the gearbox out. The whole process took six weeks."

Another challenge was the age of the DC motor, which, having been installed for some 50 years was proving costly to maintain. Alstom asked three companies to tender for the contract to improve the application, with ABB system integrator Iconsys winning due to its faster delivery schedule. "Iconsys offered us a lead time that was 10 weeks lower than the other bidders," says Finch. "As well as the low lead time, we had to be sure the supplier could stick to the delivery dates. This was critical, as a number of components were old and fragile and would not meet the Machinery Directive.

"Once we had started to rip out the old equipment, there was no going back. We couldn't put them back in, so we had to know that the delivery date was firm. We were impressed with the way Iconsys organised the delivery slots with ABB to meet our needs."

Iconsys supplied and installed a new 4 MVA transformer, a 3.1 MW water-cooled motor and a 3.1 MW ACS6000 medium voltage VSD. The installation involved removing the existing motor and altering the bed plate to fit the new motor. Another aspect was modifying the incoming protection breaker. This originally had protection circuits for the liquid-cooled starter and needed to be modified so it could provide the required 3.1 MW for the motor. Iconsys installed all the cabling and supplied and installed a safety PLC to control the Motor.

Finch outlines the benefits that the new equipment is bringing to the application: "We now have much more control," he says. "We can now ramp up or down easily and the motor is working well within its capacity so we have all the power we need. Taking away the gearboxes means we can make changeovers much quicker than before, allowing us to move between low pressure testing and high pressure testing in a couple of hours rather than the weeks it took previously. We can now test for one day and analyse the results the next day, while we are changing over to the other pressure level.

"In terms of the installation, the motor went in very well despite the tight area in which it is installed. We have received very good support from ABB and Iconsys and have excellent spares support at good rates."

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**Caption:** Alstom has cut the time needed to change its test rig set-up from six weeks to a few hours after the installation of an ABB VSD by Iconsys.

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