

# Chromalloy notches up success in Asia's turbine repair and maintenance market



Scott Nicol and Andrew Farrant of Chromalloy

Glasgow may be a long way from Bangkok, but when it comes to keeping Thailand's International Airport powered up and running, the link is a vital piece in the chain operated by Chromalloy, a world leader in gas turbine engine maintenance and monitoring.

Using the company's "Tiger" remote monitoring system, the turbines and performance of two power units at the Bangkok International Airport are constantly overseen and any discrepancies that could warn of potential problems are immediately signaled by email and SMS to experts in Chromalloy's control centre in Scotland. It is an impressive illustration of just one of the many services Chromalloy offers to customers all over the world, and increasingly in Asia, where it has an established presence with a world-class facility in Thailand.

Scott Nicol, General Manager of the Turbine Services division of Chromalloy, outlined the company's history in Thailand. "In 1999 we did local repairs for heavy industrial operators in the region and now we are a self supporting, fully operational Industrial Gas Turbine (IGT) repair shop. We have 160 employees specifically for IGT and under one roof can do everything needed on mature and advanced airfoils for users all over the world. Engine types we work on include all mature models of GE, including Frame 3, 5, 6, 7, 9, the Westinghouse models 191, 251 501, the MHI 701D, and the V94.2. On the last engine we are qualified through Siemens for repairs," said Nicol. In the power sector, Chromalloy started with the Government Power Producer in Thailand and Independent Power Producers, and

now the company also performs work for Japan, China, Indonesia and Malaysia.

"We are now expanding and moving even further afield, and performed MHI 701D work for a company in Argentina. Being self sufficient from an equipment standpoint, we provide chemical stripping, a full metallurgical lab, X-ray, and HF cleaning capabilities. We just expanded to add another large vacuum heat treat furnace and robotic coating for HVOF and air plasma," added Nicol. "We can do all welding necessary for rotating blades, and flow testing for blades and fuel nozzles. We provide all advanced capabilities under one roof, carefully control quality, and deliver a high level of service to turbine operators.

#### How does Chromalloy help EGAT?

"For Thailand we are probably the largest supplier for component repairs. We provide a lot of interaction and offer cost saving solutions for the reparability of turbine components. The operator is very much a part of the process. We are doing more outage work in Southeast Asia," said Nicol.

Chromalloy also recently finished a Frame 9 unit major overhaul in Malaysia and over the last three years has overall, doubled revenue in

**"There is a very robust process behind the work we do. We have translated these processes into the industrial side which makes our product more robust."**

Asia. Recent investments at the Thailand facility have doubled capacity and from the standpoint of technology in country, Chromalloy plans to optimize the facility to grow into F and G type class engines, making it one of the leaders in component repair in the region.

#### So what makes Chromalloy such a valuable partner to some of Asia's leading power companies?

According to Andrew Farrant, Vice President, Marketing and Corporate Communications, Chromalloy is the only company that can reverse engineer a part, cast it and can develop the ceramic cores for the casting – which is a comprehensive offering. "We can take the cast component and machine it, drill it, coat it and send it, and with our field service team we can install it. We have the most state-of-the-art casting facility in the world in which we have recently invested USD \$27 million. We make our own tooling and even designed the furnaces. We employ many PhD's, metallurgists and other technical experts and technicians, and do work specifically in the critical gas path of the turbine engine, whereas other companies work on peripherals of the engine," said Farrant.

#### No design unexamined

Another advantage Chromalloy provides is because it specialises in turbine repair, it gets to see a lot of similar failure patterns which may come from design issues. In many cases Chromalloy can redesign that aspect of the turbine from scratch to make a better turbine. Nicol said, "We are heavily into the repair aspect of airfoils and see failure patterns in the design so we not only reverse engineer the part but also take into consideration the weak aspects of a design and put that into the new airfoil. More and more, the original equipment manufacturers (OEM) patent the design attributes. We make design changes to stay clear of the patents and our parts meet or exceed the original part performance. Castings for the higher firing units for IGT, for example, are no longer just standard castings, they are directionally solidified castings and single crystal castings. "Customers can feel comfortable that overall, there is a very robust process behind all we do, as well as advanced technologies and innovation. We have translated these processes into helping turbine engine operators extend the life and performance of these systems," Nicol said.

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