

METALOCK IN-SITU MACHINING EXPERTISE EXTENDS LIFE OF CZECH TURBINE COMPRESSOR CASING

To extend the life of the compressor discharge casing of a 160MW gas turbine in the Czech Republic - about 100km north of Prague — Metalock Engineering has recently remachined two rows of stator blade dovetail slots to restore the design dimensions enabling the blades to be properly secured. The alternative was an expensive new casing and the added problem of a long production lead time from the manufacturers.

Loosening of the blades in their dovetail slots had been caused by vibration due to compressor stalling resulting from running the machine at a greatly reduced load for prolonged periods. Following investigation, Wood Group Heavy Industrial Turbines Ltd, who had been called in by the operator to overhaul the turbine, elected to carry out weld repairs to slots E1 and E2 and in-situ machine them to restore the original dimensions. Although Wood Group HIT had used in-situ machining on similar projects they had never performed such an operation on a unit of this size with slots of 1.5 metres diameter and 50mm wide. After consultation with mechanical engineering and metallurgical colleagues, Wood Group HIT's project manager contacted Metalock Engineering.

Metalock had no hesitation in accepting the task, knowing that it had the expertise and equipment to cost effectively in-situ remachine the slots in the cast iron casing to the accuracy required. To assure the best results, Metalock used one of its heavy-duty boring units. This was supported in the horizontal joint face of the casing bearing housing either side of the E1 and E2 grooves with the two casing halves bolted together. It took Metalock's team six 12-hour shifts to complete the work which was well within the time and budget allowances.

Whilst the machining was being carried out Wood Group HIT, who provide integrated, independent industrial gas turbine maintenance services for power utilities and independent power producers world-wide, had the blades restored to original dimensions at its component repair centre in Dundee, Scotland. They were then refitted to the slots, the machine rebuilt and recommissioned.

Wood Group HIT's engineers have since returned to the customer's site to do other work and found the repair extremely effective and that their customer was very satisfied with the result, particularly the cost saving over the alternative course of action.



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