Metalock Engineering UK

Press Information

METALOCK'S IN-SITU MACHINING SKILLS IN HYDRO STATIONS HELP MAINTAIN RENEWABLE ENERGY SOURCES

Metalock Engineering's in-situ machining skills have been in great demand by Weir Engineering Services recently as part of an overall refurbishment programme of hydroelectric generation facilities. Metalock has been active in five stations in Scotland and Wales.

An extensive amount of machining and alignment work has been undertaken on turbines ranging in output from 1MW up to 17MW to give them a new lease of life. Most of the operational hydro turbines in the north were installed nearly 40 years ago and have not been subject to any major refurbishment work until recently. Inevitably in that time wear takes place. The opportunity is now being taken to refurbish these machines including machining of worn surfaces to restore original dimensions, datums and operational efficiencies.

Metalock Engineering UK was selected by Weir Engineering Services for in-situ machining on hydro projects following their complete satisfaction with the manner in which the company applied its in-situ machining expertise on the first project at Rheidol in Wales.

At E.ON UK's Rheidol hydro electric scheme, cheek plate location faces and guide vane bores on a 1MW Kaplan turbine were machined to accept new guide vane shaft bushes. The discharge ring bore was checked for both concentricity and dimension, but no machining was required. The machine's rotor brake ring was machined to remove serious scoring.

Top and bottom locating faces for the turbine assembly on a 4MW Kaplan turbine at Lubreoch have been machined as have 20 guide vane bores, and the discharge ring re-profiled. Twelve coupling bolt holes on a similar machine at Dalchonzie have been line bored, reamed and honed to accommodate new fitted location bolts. Top and bottom locating faces have also been bored on a 10MW Francis turbine at Cashlie.

At Culligran, all the datum faces, both horizontal and radial, for the top had and bottom covers were machined on a 2MW Francis turbine. There is also a 17MW Deriaz turbine on this site and in-situ machining is planned to commence in October to include machining of the horizontal and radial datum faces for the top cover and lower cheek plate, line boring of 24 guide vane bush bores and machining of the final profile on a replacement runner chamber which, as well as being an extensive operation, is also a high accuracy task. The Deriaz turbine is the only one of its type in the UK and is located in a cavern on a Site of Special Scientific Interest(SSSI).

Weir Engineering Services is part of the Weir Services Division of The Weir Group PLC.

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