

Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Design and Construction of a Hydroturbine Test Facility ECE AYLI, BERAT KAVURMACI, HUSEYIN CETINTURK, ALPER KAPLAN, KUTAY CELEBIOGLU, SELIN ARADAG, YIGIT TASCIOGLU, TOBB University of Economics and Technology, ETU HYDRO RESEARCH CENTER TEAM — Hydropower is one of the clean, renewable, flexible and efficient energy resources. Most of the developing countries invest on this cost-effective energy source. Hydroturbines for hydroelectric power plants are tailor-made. Each turbine is designed and constructed according to the properties, namely the head and flow rate values of the specific water source. Therefore, a center (ETU Hydro-Center for Hydro Energy Research) for the design, manufacturing and performance tests of hydraulic turbines is established at TOBB University of Economics and Technology to promote research in this area. CFD aided hydraulic and structural design, geometry optimization, manufacturing and performance tests of hydraulic turbines are the areas of expertise of this center. In this paper, technical details of the design and construction of this one of a kind test facility in Turkey, is explained. All the necessary standards of IEC (International Electrotechnical Commission) are met since the test facility will act as a certificated test center for hydraulic turbines.

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Date submitted: 10 Jul 2014

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