Boris Mesko, B. Sc. Eng.
VESKI, Zagreb
Nastia Degiuli, B. Sc. Eng.
FSB – Zagreb

INTEGRATED DIAGNOSTIC MONITORING OF HYDRAULIC TURBINE-GENERATOR SETS

ABSTRACT

In this article is presented a concept of permanent on-line diagnostic monitoring of hydraulic turbine-generator sets, based on application of sophisticated analysis methods, enabled by measurement, A/D conversion and computer equipment development and applied updated data-base management methods. First permanent diagnostic systems (designed originally for steam turbine-generator sets vibration monitoring) installed on hydraulic turbine-generator could not provide reliable condition estimation. In order to improve the performances, additional types of monitoring, such as electric, hydraulic and process values were developed. Original concept of partial monitoring types solutions is being replaced by integrated on-line diagnostic monitoring on a single platform.

General description of integrated hydraulic turbine-generator set on-line diagnostic permanent monitoring concept is illustrated by description of installed diagnostic monitoring system in HPP Dubrovnik, which integrates on-line monitoring of vibration values, generator air-gaps and poles' magnetic flux and generator and network currents and voltages. Turbine efficiency, cavitations and generator partial discharge monitoring is planned as well.

Keywords: diagnostic monitoring, vibrations, air-gap, magnetic flux.