

**RANCANG BANGUN TURBIN CROSSFLOW SEBAGAI PEMBANGKIT
LISTRIK TENAGA PIKOHIDRO DENGAN MEMANFAATKAN ALIRAN
IRIGASI**

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ABSTRACT

The crossflow water turbine is one action turbine. The magnitude of the crossflow water turbine rotation is due to the utilization of water energy in the turbine which is carried out twice, the first is the water collision energy on the blades when the water enters, and the second is the thrust of the water on the blades when the water leaves the runner. This study aims to determine the design and manufacture and test results of crossflow turbines for PLTPH, to determine the performance of crossflow turbines using NACA 6409 blades, and to determine the effect of increasing load power on the performance of crossflow turbines. The research was conducted in Cempaka Hamlet, Pakis Village, Panti District, Jember Regency by utilizing irrigation flow. The results of the crossflow turbine design adjust the potential obtained from the results of the energy potential survey of 362.2 watts. The test result of the turbine's power flying was 217.40 watts. Crossflow turbine testing using irrigation flow obtained the results of no-load turbine rotation of 211.73 rpm, voltage of 218.9 volts, torque of 9.81 Nm and turbine efficiency of 60%. The addition of load power to the generator results in a decrease in turbine rotation, voltage, frequency, and turbine power.