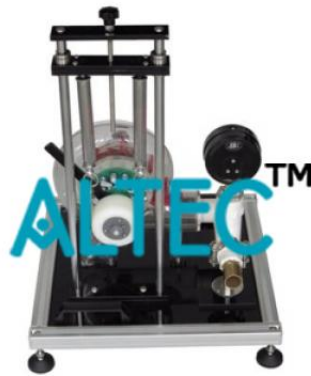


Product Name :
Operating Principle of a Francis Turbine

Product Code :
FUDE0074



Description :

Operating Principle of a Francis Turbine

Technical Specification :

- model of a reaction turbine
- transparent operating area
- turbine with adjustable guide vanes
- loading by band brake

Water turbines are turbo machines utilising water power. The Francis turbine is a type of reaction turbine which converts the pressure energy of the water into kinetic energy in the distributor and in the rotor. The water is fed in the distributor by means of a spiral housing.

The flowing water is accelerated in the distributor by the adjustable guide vanes and directed onto the blades. The redirection and further acceleration of the water in the rotor generates an impulse which is transmitted to the rotor.

MR-HM 150.20 is the model of a Francis turbine demonstrating the function of a reaction turbine.

The experimental unit consists of the rotor, the distributor with adjustable guide vanes, a band brake for loading the turbine and a housing with a transparent front panel. The transparent cover enables to observe the water flow, the rotor and the guide vanes during operation. The angle of attack and thus the

power of the rotor are modified by adjusting the guide vanes.

The turbine torque is determined by force measurement on a band brake and is read on spring balances. For measuring the rotational speed, a noncontact speed sensor, e.g. MR-HM 082, is required. A manometer shows the water pressure at the turbine inlet.



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