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Product Name :	**Product Code :**
Demonstration Pelton Turbine	NLAB-MECHANICALAB230010

Description :

Demonstration Pelton Turbine

Technical Specification :

The experimental unit consists of the Pelton wheel, a needle nozzle used as distributor, 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 Pelton wheel and the nozzle during operation. Adjusting the nozzle needle modifies the nozzle cross-section and thus the flow rate.

Water turbines are turbo machines utilizing waterpower. The Pelton turbine is a type of impulse turbine; such turbines convert the pressure energy of water into kinetic energy entirely in the distributor. During the conversion, the water jet is accelerated in a nozzle and directed onto the blades of the Pelton wheel tangentially. The water jet is redirected by approximately 180° in the blades. The impulse of the water jet is transmitted to the Pelton wheel.

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

Demonstration Pelton Turbine

FEATURES

Model of an impulse turbine

Design and function of a Pelton turbine

Determination of torque, power and efficiency

Graphical representation of characteristic curves for torque, power and efficiency

Function of a Pelton turbine

Transparent front panel for observing the operating area

Loading the turbine by use of the band brake

Adjustable nozzle needle for setting different nozzle cross-sections

Marking on brake drum for non-contact speed measurement

Instruments: spring balances for determining the torque, manometer shows pressure at turbine inlet

The experimental unit is positioned easily and securely on the work surface

SPECIFICATION

Pelton turbine

Output: 5W at 500min-1, approx. 30L/min, H=2m

Pelton wheel

14 blades

Blade width: 33,5mm

External Ø: 132mm

Needle nozzle

Jet diameter: 10mm

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