

**Product Name :**  
Demonstration Pelton Turbine**Product Code :**  
FLDM0010**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.

A manometer shows the water pressure at the turbine inlet.

For measuring the rotational speed, a non-contact speed sensor, is required.

**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

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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<sup>-1</sup>, approx. 30L/min, H=2m

Needle nozzle :

Jet diameter: 10mm

Pelton wheel :

14 blades

Blade width: 33,5mm

External Ø: 132mm

Measuring ranges :

Force: 2x 0...10N

Pressure: 0...1bar

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