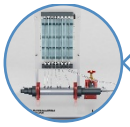


Demonstration of Pelton Turbine Apparatus (SMT-FM-14)

The Pelton turbine is a type of impulse turbine. Such type 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.

This ESOLS product consists of a Pelton wheel mounted in a corrosion-resistant enclosure. A transparent PMMA front panel allows students to see the turbine working.

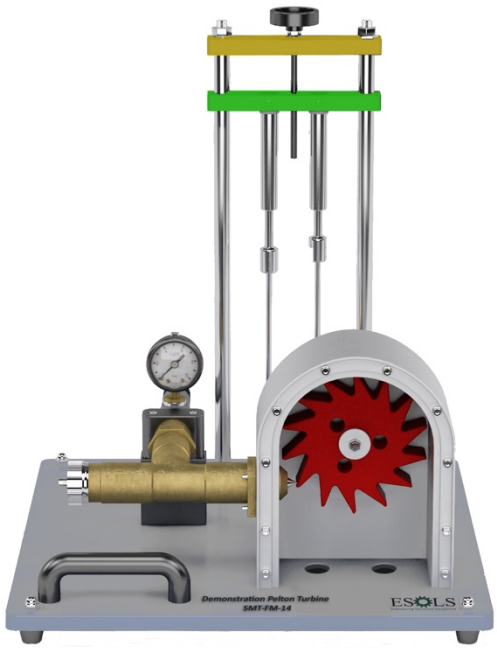
A simple mechanical brake and spring balance assembly attached to the shaft of the Pelton wheel applies a variable mechanical load (torque). Students use this with the speed (from the optional tachometer) to find power absorbed by the turbine. A gauge measures inlet pressure.

This unit can be operated by Laboratory supply of with any Hydraulic Bench.

TECHNICAL SPECIFICATIONS

Specifications:

- Study of functionality of Pelton Turbine
- Transparent PMMA window so students can see the Pelton wheel working
- Includes band brake and spring balance to measure turbine torque
- Includes pressure gauge to measure inlet pressure
- Screw-controlled spear valve for precise inlet flow control
- Water supply using SMT-FM-100 base module.
- Supplied with a comprehensive user guide.
- PVC Pipe Fittings.



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Technical Data:

- Pelton turbine:
  - output: 3.5 to 5W at 500min-1,
  - approx. 30L/min, H=2m
- Pelton wheel:
  - 16 blades
  - blade width: 33mm
  - external Ø: 130mm
- Needle nozzle:
  - jet diameter: 10mm
- Measuring ranges:
  - force: 2x 0 to 10N
  - pressure: 0 to 1bar
- LxWxH: 400x400x600mm.
- Weight: approx. 15kg.
- Accessories (Included)
- All necessary Flexible pipes and fittings.
- Instruction Manual
- Operating Conditions
- Laboratory Temperature: 5°C to 40°C
- Note:

This product may produce small splashes of water in use, so you must use it at a safe distance from electrical supplies. ESOLS recommends approximately 2.0 m.

Experimental Data:

- Performance of a Pelton turbine at different flow rates
- Study of Torque, Power and Efficiency of a Pelton turbine
- The effect of spear valve position
- The graphical representation of characteristic curves for torque, power and efficiency

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