



Material

Item-no.	Qty.	Description
DT730-1F	1	Propeller turbine simple
DM340-2W	1	Vat with drain connector Acrylic, D=200 mm, H=65 mm
DG110-1B	1	Measuring beaker, plastic, 1000 ml

Purpose

To demonstrate how a turbine works in a river power plant, comparable to a Kaplan or Francis turbine. Potential energy is converted into kinetic energy.

Preparation

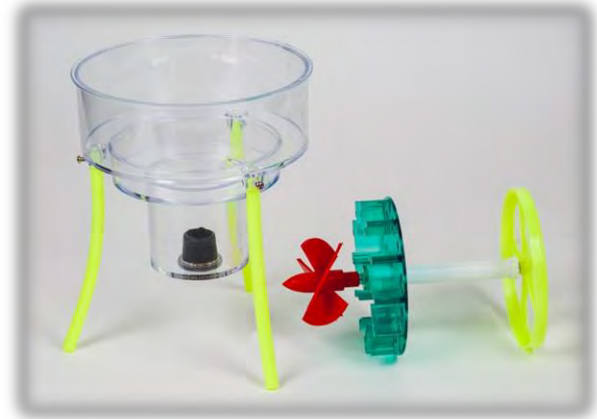
The turbine unit is lifted out of the water tank with the impeller.

The design of the turbine can now be explained and analysed:

It can e.g. B. The differences between a Francis and a Kaplan turbine are discussed.

The usefulness and shape of the guide vanes, which are arranged above the turbine, should also be discussed.

The sealing plug is pressed firmly into the bottom of the water container.



The model is placed in the tub.

The water tank is now filled with about 800 ml of water.

The turbine unit with impeller is reinserted into the center of the water tank.

Experiment

The turbine is closely observed.

(If a camera is available, it should be aimed at the turbine.)

The stopper is pulled off the floor downwards.

Result

The water runs out on the underside of the water tank and flows through the area of the propeller blades of the turbine. The mass of the water drives the turbine and thus also the impeller. In practice, a generator is installed in place of the impeller. Potential energy is converted into kinetic energy.

Note

Due to the large flow rate, the water ran through quickly, so the turbine only rotates for a few seconds.

In contrast to the Pelton turbine, the propeller turbine therefore requires a large flow rate.

On the other hand, the propeller turbine works even at lower flow rates, which in run-of-river power plants on rivers is due to the low gradient..