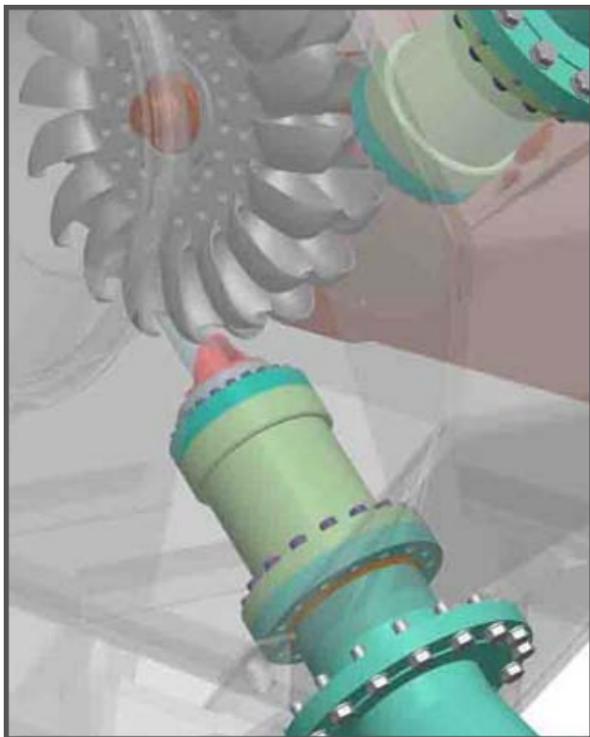


## Pelton Horizontal

Runner Diameters	500 mm to 1800 mm
Number of Jets....	1, 2 or 3
Head.....	50 to 1000 meters (165 to 3300 feet)
Flow.....	0.1 to 6 cms (4 to 212 cfs)
Power Output.....	30+ MW
Transmission.....	Runner Assembled to Generator or Turbine Shaft

## Pelton Vertical

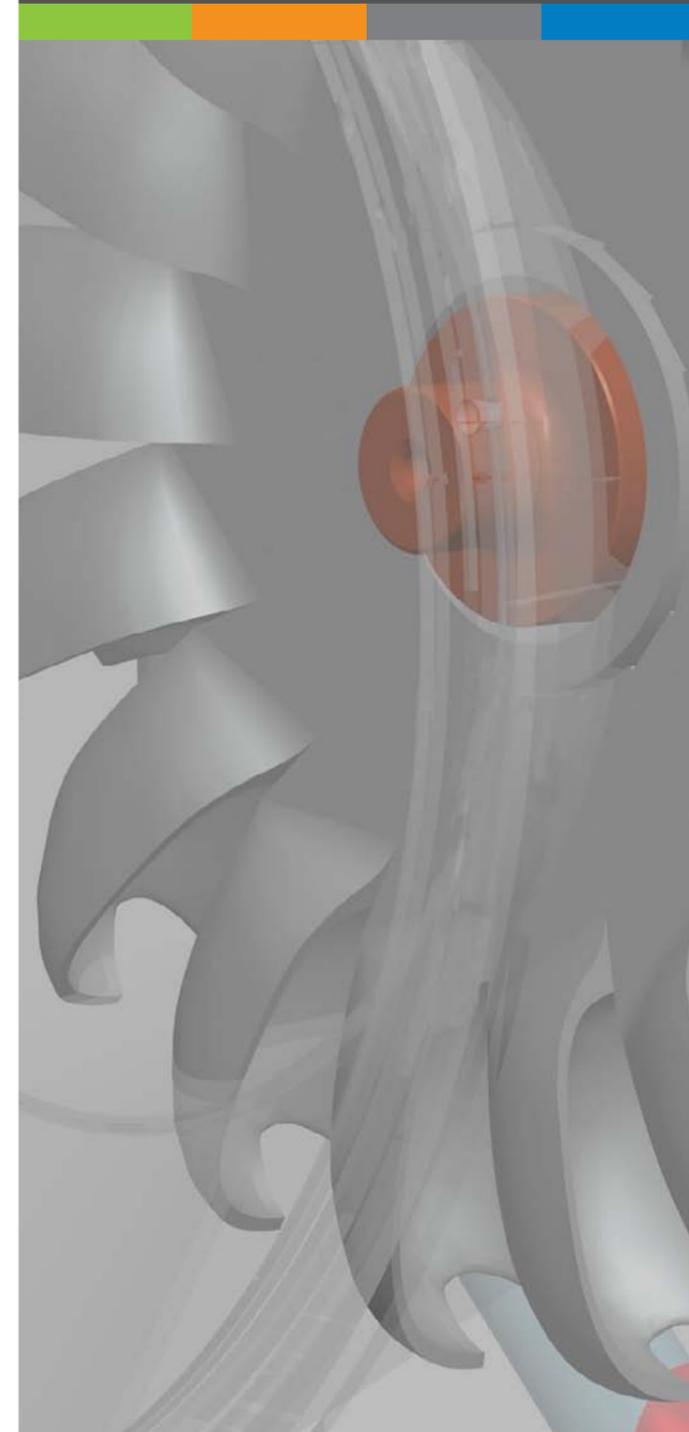
Runner Diameters	500 mm to 2500 mm
Number of Jets....	3, 4, 5 or 6
Head.....	50 to 1000 meters (165 to 3300 feet)
Flow.....	Up to 10 cms (up to 353 cfs)
Power Output.....	30+ MW
Transmission.....	Runner Assembled to Generator or Turbine Shaft



Mavel Horizontal Pelton Turbine



## Mavel Pelton Turbines



## The Mavel Pelton Turbine

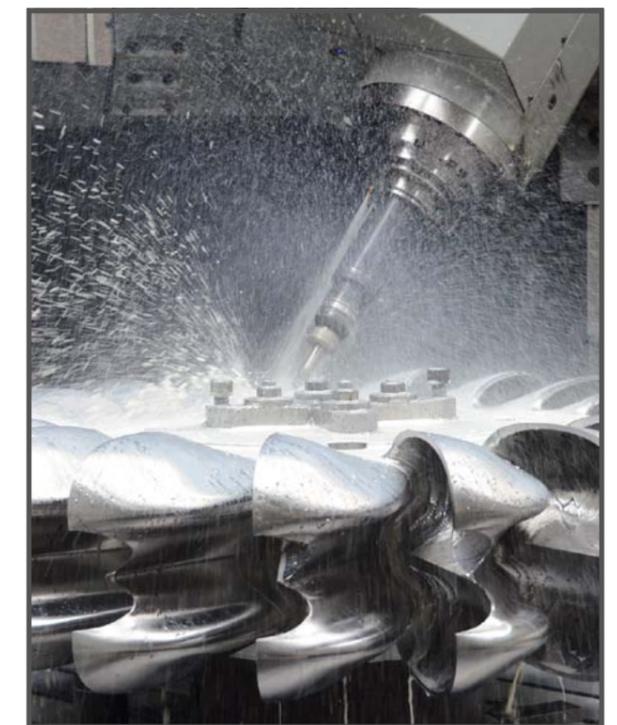
Lester Pelton invented the Pelton turbine in 1878, following the California Gold Rush. Having witnessed miners using inefficient water wheels for energy, Lester Pelton was inspired to design a better turbine.

The Pelton turbine is designed for high heads and low flow rates. A number of jets (1-6) direct water at extremely high velocity at the turbine buckets, which causes the turbine to spin.

**Mavel's Pelton turbines are designed for hydroelectric plants with heads ranging between 50 and 1000 meters.** Each Pelton runner is customized and can be configured either vertically or horizontally. The runners are milled from a single block of steel. Mavel's Pelton turbines are installed at projects in Europe, Asia, and North America.

Mavel Pelton turbines have the following specifications:

- horizontal or vertical configuration
- runner diameter up to 2500 mm
- 1, 2 or 3 jets on the horizontal
- 3, 4, 5 or 6 jets on the vertical
- head range of 50 to 1000 meters (165 to 3300 feet)
- flow of 0.1 to 10 cms (4 to 353 cfs)
- installed power output up to 30+ MW



Mavel Pelton Runner Being Milled

### Mavel, a.s.

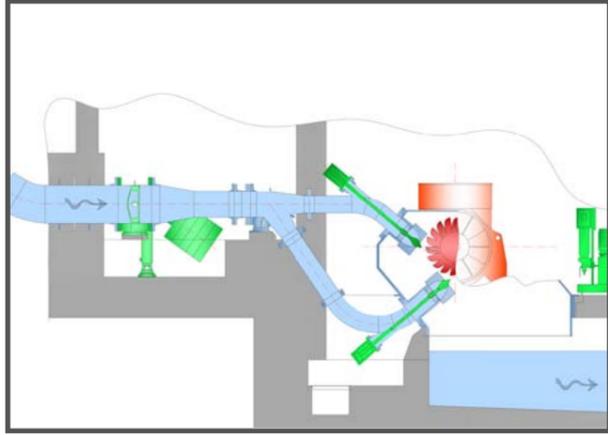
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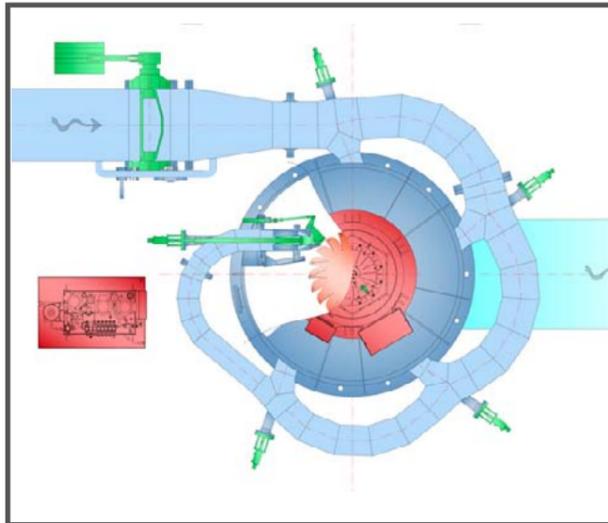
[www.mavel.com](http://www.mavel.com)

## Pelton Horizontal



Pelton turbines are preferred when the available water source has relatively high hydraulic head and low flow rates. Thus, more power can be extracted from a water source with high-pressure and low-flow than from a source with low-pressure and high-flow, even when the two flows theoretically contain the same power. Using 1 to 3 jets Mavel's Pelton Horizontal turbine directs high pressured water into the runner buckets.

## Pelton Vertical



Mavel's Pelton Vertical is also ideal for high head, low flow configurations. The Pelton Vertical offers 3 to 6 jets of direct flow onto the turbine runner buckets.

### ARMAMAR HPP

Located on the Tedo River in Armamar, Portugal, Armamar HPP's Horizontal Pelton turbine offers 739 kW of installed power to the region.



#### Armamar HPP Parameters

Turbine.....	1 x Pelton Horizontal
Head.....	218 meters (715 feet)
Flow.....	0.40 cms (14.1 cfs)
Total Power Output.....	739 kW

### UPPER CLOWHOM HPP

On the Clowhom River in southwest British Columbia, Upper Clowhom HPP is one of a two plant development owned by Hydromax Energy Ltd.



#### Upper Clowhom HPP Parameters

Turbine.....	1 x Pelton Vertical
Head.....	165 meters (541 feet)
Flow.....	8 cms (279 cfs)
Total Power Output.....	11.3 MW

### YEGHESIS HPP

Located in the Caucasus mountains of Armenia, Yeghesis HPP is the largest private station in the region with total output of 13 MW.



#### Yeghesis HPP Parameters

Turbine.....	2 x Pelton Vertical
Head.....	250 meters (820 feet)
Flow.....	6 cms (211 cfs)
Total Power Output.....	13 MW

### BELA MESTA HPP AND CHERNA MESTA HPP

Bela Mesta HPP and Cherna Mesta HPP are a two plant hydropower project in southwest Bulgaria. They provide 1.3 MW of installed power to the area.

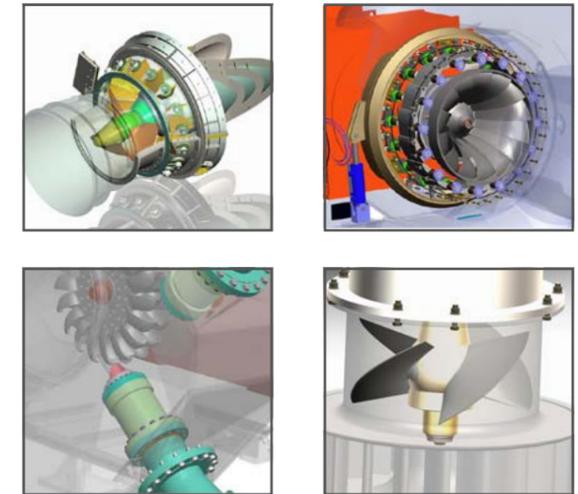


#### Bela Mesta HPP and Cherna Mesta HPP Parameters

Turbine.....	2 x Pelton Vertical
Head.....	98 meters (321 feet)
Combined Flow.....	1.6 cms (63.56 cfs)
Total Power Output.....	1.3 MW (combined)

## Hydro Turbine Technology by Mavel

Mavel is a global leader in the supply of Kaplan, Francis, Pelton and modular micro turbines and related equipment for hydroelectric power plants utilizing turbines from 30 kW to 30+ MW.



**Founded in 1990, Mavel was one of the first companies formed under the new Czech Commercial Code.** The company moved from Prague to its current headquarters in Benešov, CZ in 1993 and brought in a consortium of American / Canadian / European investors in 1997. Funds were used to upgrade facilities and purchase a small hydro turbine producer near Brno, CZ. The original founders of the company remain top managers with their American counterparts and are supported by a team of global hydroelectric power specialists.

**Mavel produces turbines at its two 12,900 m<sup>2</sup> combined manufacturing facilities** which have 85 ton crane capacity, and 40 machines including a 5-axis milling machine and a new 6-axis prototype machining center put into operation in 2013.

**The Company is ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 and ISO 3834-2:2005 certified.**

Over the past twenty five years, Mavel has installed or signed contracts for over 500 turbines at more than 300 sites in 43 countries around the world.