



**Sunnytek** Solar Sweden

Hydro power solutions by Sunnytek

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Sunnytek offer a number of solutions to make electricity by hydro power generators. The range starts by small turbines of only 300W output up to MW sized large units. This is a short form paper about what we offer. Our focus is tropical regions of earth but also special areas in Scandinavia etc. where we have unique and price attractive systems to offer.

**Low head small Kaplan systems** where the turbine is down under water and connected to the generator by a short shaft. This is very simple and low cost solutions but they are reliable and perfect in many rural areas where there is no grid. Power range starts at 300W and ends at 10 KW output. Water head is 1.5 meter to 5 meter.

Ideal for small rivers and creeks.



**Tube connected Kaplan turbines** are a bit similar but have a conn section by tube for incoming water and a draught tube as exit. They are a bit larger and starts at 1 KW up to 15KW output. Water head 4 meter to 15 meter.

**Larger Kaplan systems** with more advanced functions. For water heads from 1.5 meter to 10 meters. Output range from 20 KW to 200 KW. Here we have a turbine and generator with gear box to get up speed.



**Turgo water turbines** for water heads from 12 meter to 60 meter. They are simple and straight and have a turbine similar to Pelton design. Power range starts at 300 W and up to 70 KW output. This is a simple and low cost design with very good reliability for many years. Simple maintenance.



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**Francis turbines** is the universal high end turbine. Water head starts at 10 meter and ends up to over 100 meters. Power range from 20 KW to several MW size. These turbines are good to handle large variations in flow with high efficiency. There are horisontal shaft and vertical shaft models.



**Pelton turbines** are the selection when water head is very high. They are useable from 100 meter up to 1000 Meters watered. Normally they are 100KW to MW in size.



**Cross flow turbine** is a medium size turbine with water heads from 10 meter to 75 meter. Outputs from 20 KW to 100 KW in output.



**Archimedes screw turbines** where water head is very low. Here we can get power from 1 meter watershed up to 5 meters. Power from a few KW to 100 KW. They are large and costly but often the only solution that can be used.

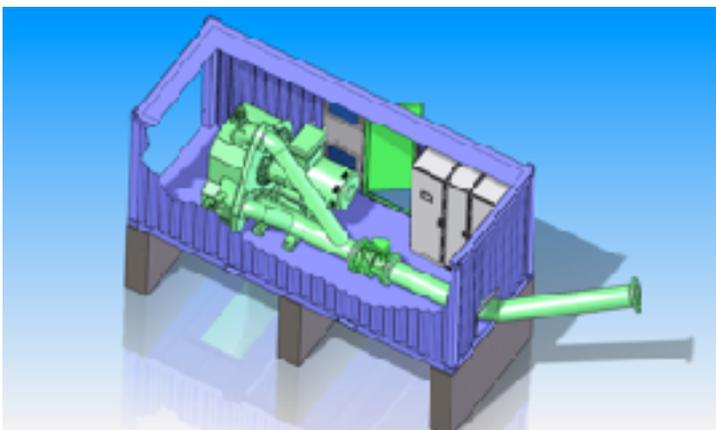
**Propeller based venturi water flow turbines** are unique a they use the water speed to make power. They need over 2 meter in water speed and then they are efficient up to 5 meters / sec in speed. They are anchored with wires and have floats to keep depth.



This model is unique and a new design. Limit is that river must be free from large floating objects as trees etc.



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**Containerized hydro power solutions** made in Scandinavia by a very high quality producer of hydro power systems. Here we offer all designs in a container with a limit up of about 1 MW output. This design makes installation much shorter and is perfect in remote areas. These systems have always web interface and remote control.

**Electronic controllers and cabinets** for power station control and automatic operation. Here we can see all works on grid and system is 100% unmanned in most cases.



**Valves tubes and fittings** for all designs of water turbines. Butterfly valve for water management and control. We can supply what is needed in all installations.

Below a lay out of a **160KW Francis turbine** for 30 meters water head. This is a typical rather large system that is common world wide. This design is very cost attractive and in several cases we see the installation is paid in less 4 years time. Sunnytek & Partners have a way to offer a financial package by investors we know. Pls contact us about more details.

