THAIMAXWELL SOLAR

RENEWABLE ENERGY ENGINEERING

Containerized Small Hydropower Solutions

Reliable power generation for remote and industrial sites

- High Efficiency
- Modular Containerized Design
- Rapid Deployment
- Remote Monitoring Ready



Product Overview

Containerized Small Hydropower Generating Unit

A compact hydropower generation solution designed for sites with available hydraulic head and flow. The system integrates the turbine, generator, control system, auxiliary equipment, and containerized enclosure into one deployable package.

The containerized format helps reduce civil construction work, simplify transportation, protect critical equipment, and accelerate on-site installation. It is suitable for remote communities, irrigation systems, mountain streams, industrial water discharge, and renewable energy projects.



46-532 kW
Selectable output range

Up to 91.1%
Reference turbine efficiency

400V / 60Hz
Standard electrical output

IP55
Industrial enclosure protection

Key Advantages



1 Containerized Design

Pre-integrated container structure supports fast transport, easy protection, and simplified site deployment.

2 High Energy Conversion

Optimized turbine-generator matching helps maximize output from available head and flow conditions.

3 Remote Monitoring Ready

Automation and monitoring interfaces support operational visibility and easier maintenance planning.

4 Rugged Outdoor Use

Industrial enclosure, ventilation, and protection design support long-term outdoor operation.

5 Modular Project Scale

Multiple power ratings can be selected based on water head, discharge, and site demand.

6 Lower Site Complexity

Factory integration reduces on-site assembly work compared with conventional civil-heavy solutions.

System Architecture



Electrical control room



Turbine valve assembly



Precision runner / impeller

The containerized hydro generator system integrates the turbine valve assembly, generator, control panels, grounding and protection devices, and auxiliary systems into one modular package. Factory pre-integration helps reduce on-site construction work, simplifies commissioning, and improves overall installation quality and project delivery speed.

Integrated Power Flow

Water Intake
Head & flow source

→

Turbine
Hydraulic energy conversion

→

Generator
Electrical power output

→

Control System
Protection & automation

→

Load / Grid
Power delivery

Product Gallery



Complete containerized unit



Electrical control room



Turbine valve assembly



Precision runner / impeller



Outdoor installed container



On-site installation view

Technical Specifications

Parameter	Specification
Hydropower Unit Model	PILLER-WJ-34
Rated Power	67 kW
Rated Speed	1200 r/min
Runaway Speed	2056 r/min
Operating Mode	Synchronous, constant frequency
Turbine Efficiency	88% reference
Generator Efficiency	91.3%
Output Voltage	400 V
Frequency	60 Hz
Container	20HQ container with anti-rust treatment
IP Rating	IP55
Ambient Temperature	-35 C to 50 C



Note: Final model selection depends on verified site water head, approved discharge rate, hydraulic conditions, and project requirements.

Hydraulic Head & Flow Rate Reference

Head (m)	Discharge (m^3/s)	Speed (r/min)	Power (kW)	Efficiency (%)	Generator	Valve
43	0.13	1100	46	89.1	40-6	DN300
50	0.13	1200	57	90.2	50-6	DN300
58	0.16	1275	82	90.1	75-6	DN300
65	0.19	1325	108	89.2	100-6	DN300
38	0.32	1100	108	90.5	100-6	DN400
52	0.48	1200	223	91.1	200-6	DN400
56	0.55	1250	272	90.5	250-6	DN400
65	0.6	1300	343	89.5	320-6	DN400
31	1.3	1100	356	90.1	320-6	DN600
37	1.35	1200	441	90.2	400-6	DN600
42	1.45	1250	532	89.5	500-6	DN600

Power Output Estimation

Power Output = 9.81 x Head x Flow Rate x Turbine Efficiency x Generator Efficiency

Example: 9.81 x (__) x (__) x (__) x (__) = approximately __ kW

Applications & Site Assessment

Typical Applications

- Remote communities and off-grid locations
- Mountain streams, waterfalls, and small rivers
- Irrigation canals and water management systems
- Industrial water discharge and process water recovery
- Eco-tourism, resorts, and sustainable facilities
- Hybrid renewable energy projects with solar or storage



Key Site Assessment Criteria

Hydraulic head, approved flow rate, intake design, pipeline routing, discharge management, access road, installation foundation, electrical interconnection, and government approvals should be confirmed before final system sizing.

Project Delivery & Support



Factory Integration and Acceptance

The system is designed for factory integration before delivery. Factory acceptance testing can be carried out according to agreed test items, with customer engineering representatives joining the inspection before shipment.

✓ Engineering

Site review, configuration and technical consultation

✓ FAT Support

Factory acceptance test before shipment

✓ Installation Support

On-site assistance by engineering team

✓ Monitoring

Wireless remote monitoring and workstation interface

✓ Training

Operator guidance and maintenance consultation

✓ Spare Parts

Long-term service and replacement support

Start Your Hydropower Project

Contact our engineering team for site assessment, model selection, technical proposal, and project discussion.

THAIMAXWELL SOLAR Co., Ltd.

Renewable Energy Engineering Solutions

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