



Durali System Design & Automation Co.

Micro, mini and Small Hydro Power Plants





Micro, Mini & Small Hydro Power Plant

Hydro Energy is one of the best means for clean and renewable energy that develop life and welfare of people who have access to small run off rivers especially in mountainous areas.

“Durali System Design & Automation Company (DSDA)” has developed the know-how for design, manufacturing, erection and commissioning of micro, mini and small Hydro Power Plants with capacity of 30KW to 6MW.

Our main object in developing these products is “simplicity” and “ease of installation and operation”. Therefore, the micro and mini Hydro Power Plant can be provided as “Skid Mounted Units or Packed Units” that can easily be used by unexperienced users.

We Provide consultancy services (prior to receive of order) to customers willing to develop a small hydro Power Plant.

Our services include: “Design, procurement, manufacturing, installation and commissioning of main equipment from water inlet to electricity grid connection (water to wire)”.

Several type of turbines (Banki, Pelton, Francis and axial) can be offered according to conditions of place of installation.

Capacity of each unit can be from 30KW to 6MW for each unit.



Available Design for Pelton Mini & Small HEPP (from 10KW to 6MW)



Deliverables:

- Turbine set;
- Inlet Valve;
- Asynchronous Generator (up to 200KW) or Synchronous Generator with Excitation;
- DCS;
- SCADA;
- AC/DC and protection Panels;
- Transformer;
- Vibration monitoring system;
- Spare Parts.

Thermal or electro hydraulic governor;

- Using thermal or electro hydraulic governor in control system;
- Stability against high fluctuations;
- Black starting;
- Ability to synchronize with electrical grid;
- 8 months delivery time.

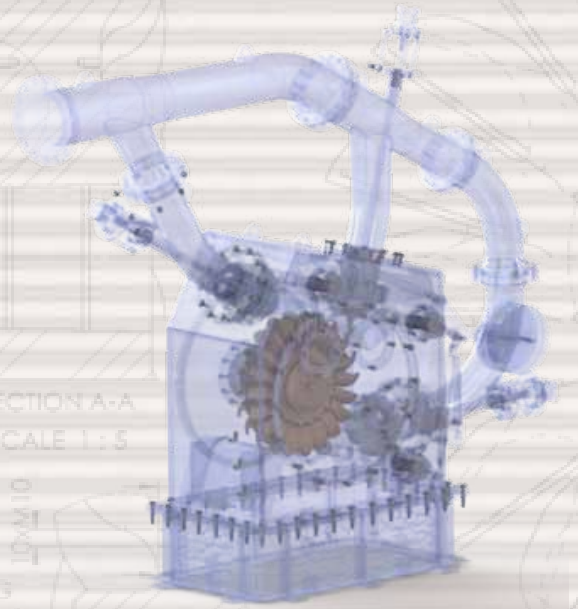
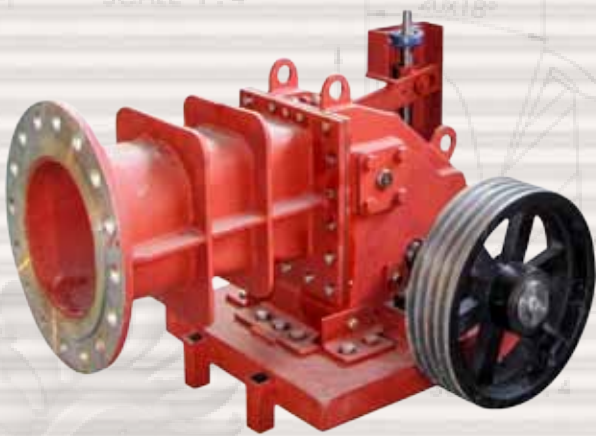


Available design for Banki Mini & Small HEPP (10KW to 6MW)

Micro, Mini & Small HEPP

(10KW to 6MW)

- Turbine Type: Banki;
- Flow: 25 to 10,000 liter/s;
- Head: 15 to 100m;
- Offered with Helical or Planetary Gearbox;
- Easy to mount;
- Electro hydraulic Control System.



- Turbine Type: Pelton;
- Flow: 50 to 1000 Liter/s;
- Head: 100 to 1000m;
- Orientation: Horizontal or Vertical;
- Number of Nuzzles: 1 to 6;
- Easy to mount;
- Electro Hydraulic Control System.

Skid Mounted and Packs HEPP

(up to 1 MW)

Skid Mounted HEPP includes all required equipment like: inlet valve, turbine, generator, control & monitoring system, power transformer and necessary protection equipment.

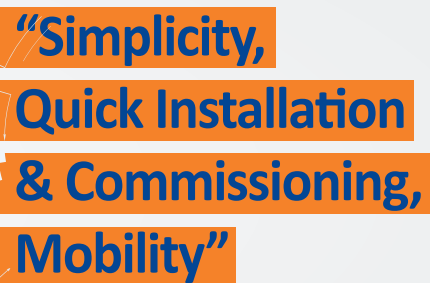
Available in open Skid or enclosed Skid Packs. Easy to install, easy to operate and minimum foundation requirement are the main characteristics of these units.

Skid mounted units are suitable for 5 to 200 meter of head and 10 to 10,000 liter/second of flow rate.





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Delivered Micro Power Plants

General Specification

- Black Start ability;
- with thermal governor to support sudden load change up to 80% of nominal power
- fast start & stop
- speed and frequency control with high accuracy in Island mode;
- High stability against rapid load fluctuation;
- Ability to synchronize with electrical grid;
- Short delivery time.



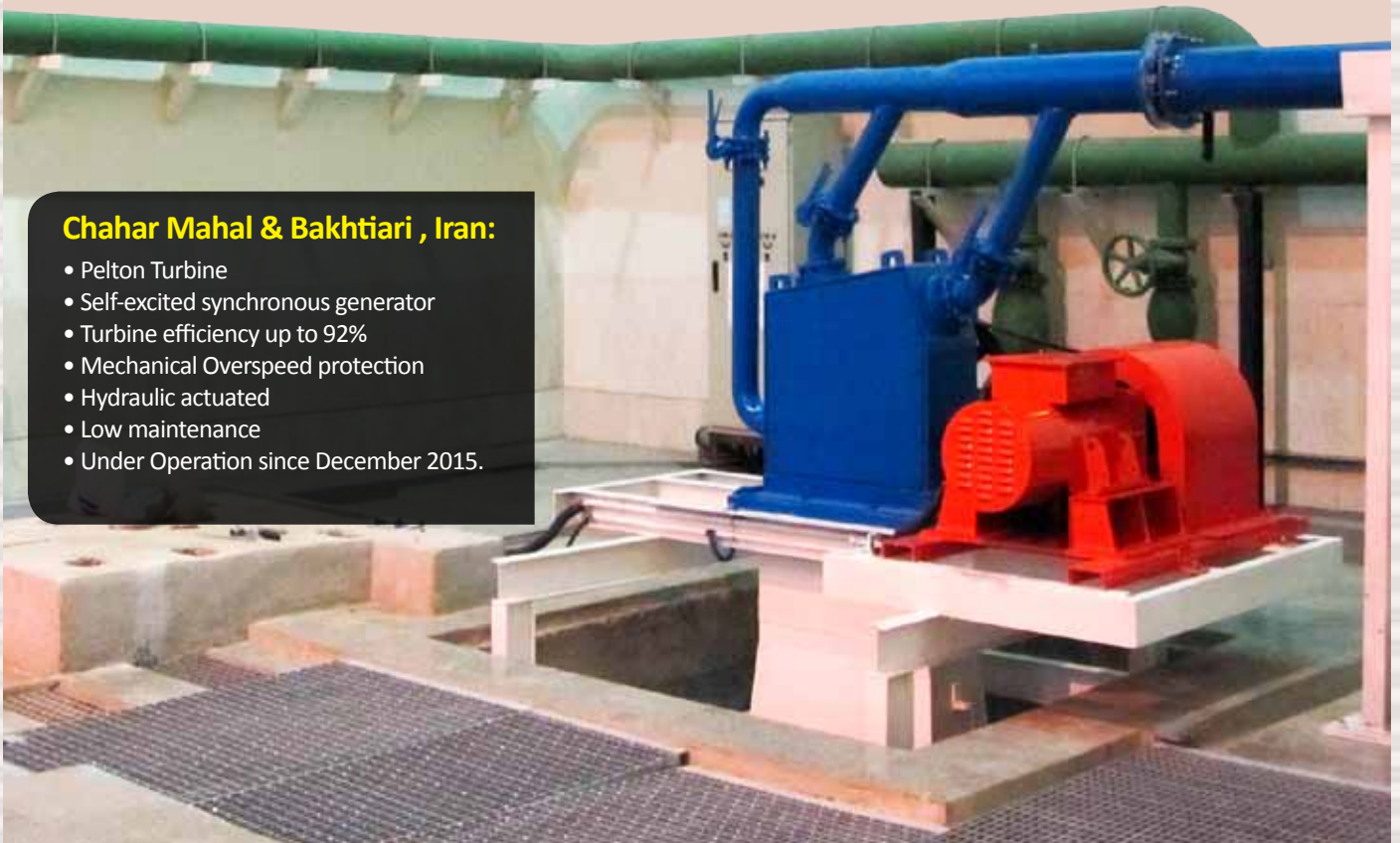
Resistors Bank
of Thermal Governor



Thermal Governor

Chahar Mahal & Bakhtiari , Iran:

- Pelton Turbine
- Self-excited synchronous generator
- Turbine efficiency up to 92%
- Mechanical Overspeed protection
- Hydraulic actuated
- Low maintenance
- Under Operation since December 2015.





Ghale Chai Micro HEPP East Azerbaijan, Iran:

- Cross Flow Turbine (Banki Turbine)
- Self-excited Synchronous generator
- Turbine efficiency up to 85%
- With mechanical over speed protection
- Hydraulic actuated
- Low maintenance
- Under Operation since January 2015.



Kavand Micro HEPP, Chahar Mahal & Bakhtiari , Iran:

- Axial Flow Turbine
- Self-excited Synchronous generator
- Turbine efficiency up to 88%
- With electrical overspeed protection
- Hydraulic actuated
- Low maintenance
- Under Operation since December 2015.



Unit 4, No. 33,
Sadeghi St.,
Azadi Ave., Tehran, Iran
www.dsdaco.com
info@dsdaco.com

