



JAIN HAND + SOLAR PUMP

Introduction

Availability of water predominates the very existence of human being. We all know that water is becoming scarce day by day. In the present scenario, people have to run after water. Due to non availability of electricity, pumping ground water has become difficult. One of the solutions to this was the hand pump. But still, people have to exert, to get the water. JAINS have come up with a novel idea of integrating Jain Solar pump with the conventional hand pumps.

How Jain Hand + Solar Pump Works?

- Jain Hand + Solar Pump is basically the integration of solar submersible pump with the existing hand pump assembly.
- During day time the user will operate the handle assembly to draw water. Alternatively, the user can switch on the solar pump to draw water from the same hand pump.
- The water that is pumped, is usually stored in an overhead tank.
- Water will be either used for drinking purpose or for smaller size of drip irrigation system such as family drip kit, gardens, etc.
- During night, in the absence of solar energy, the hand pump can be used to fill the overhead tanks. This hybrid system really proves beneficial over the conventional systems.

System components

- Hand pump assembly
- Solar submersible pump with controller
- Solar PV modules
- Solar tracker / stand
- Plastic tank and its stand.
- Pipes, fittings, structure, etc.

Advantages

- Low capital repairs and maintenance cost
- Suitable for use up to 50 metres
- When solar energy is not available water can be drawn through hand pump.
- The water that will be available is uncontaminated, safe, potable and hygienic since it is drawn from the deeper level.
- Over all savings in electricity and water.
- Over exploitation of water could be minimised.
- Suitable for agricultural purpose also. Mostly for drip irrigation with family drip kit.
- Increase in output by approx 25 to 30 % when tracker system is used.
- Solar pump operates automatically. No human interference is necessary.

Typical Applications

1. Gravity Drip Irrigation Systems

The solar submersible pump typically used in these applications can deliver water up to 20,000 liters/day. This water can be stored in an overhead tank, from where it can be connected to a drip irrigation systems. Models such as family drip dit, bucket kit can be also combined to this system.

2. Drinking Water supply for colonies, schools, etc.

This is a very good option to combine a small solar submersible pump with an existing hand pump system. A network can be designed, so that the solar pump can supply water in the designed network during day time. Additionally water can also be stored in an overhead tank, from where it can be used during night time.

3. Village drinking water supply schemes

In such schemes, a hand pump system is installed. In addition this, a solar submersible pump can be installed in the same bore & its outlet will be connected to the main line of the stand posts, which are installed at various locations. The connection to such stand posts can also be through an overhead tank, if required.

4. Community drinking water supply

Here, the outlet of the solar pump is made common with the existing hand pump. During the day time, water will be available through solar pump (and also through hand pump if required). During night water will be available through hand pump.

Salient Features

- Jain Hand + Solar Pump is useful to provide piped water supply in remote village where grid power is not available.
- The Jain Solar submersible pump is operated on energy generated by the solar PV modules.
- No batteries are required in most cases.
- The Jain Solar Powered submersible pump is installed in the same hand pump bore well.
- The Jain Solar pump delivers water directly to an overhead tank for storage and distribution.
- The stored water can be used as and when required in absence of power from the solar PV modules.
- The complete system is eco-friendly.
- No operational cost
- Low maintenance



Technical details and specifications

Hand Pump

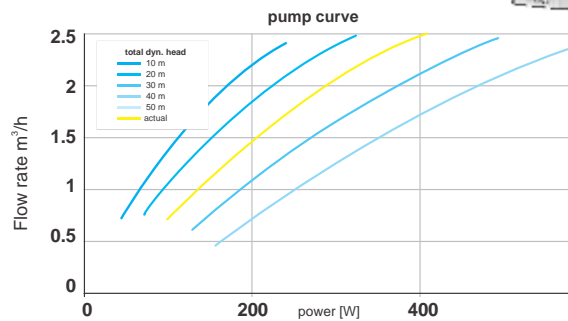
- **Pump Assembly** : This comprises of the head with handle assembly, water chamber assembly and the stand assembly.
- **Cylinder Assembly** : A cast iron cylinder body with a brass liner inside and the lower and upper valve assemblies made out of gun metal (Lead, Tin & Bronze)
- **Connecting Rod Assembly** : A link between the pump assembly and the cylinder assembly made from 12mm diameter stainless steel or electroplated mild steel rods.
- **Riser pipe Assembly** : Either 32mm or 50mm or 65mm diameter GI pipes supplied in three meter length with both ends threaded and one end fitted with coupler.
- **Head & Handle Assembly** : This is used to pump the water from deep well.

Jain Photovoltaic Modules

- Modules are made from high efficiency Crystalline Silicon solar cells.
- Cell efficiency range is 14 to 17%. This is one of the best possible range available at present in the industry.
- Module efficiency range is 12 to 14%
- Cells are encapsulated in a low iron, high transmission, toughened glass using UV Stable Ethylene Vinyl Acetate (EVA) Sheets. This ensures durability.
- Premium quality back sheet, protects the module from environmental conditions.
- Laminate is framed with strong and anodized aluminum profile with multiple holes for ease of installation.
- Fitted with suitable IP protection junction box, cables & connectors.

Jain Submersible Solar Pump system

- This includes the helical rotor pump, brushless DC motor, controller & tracker.
- Max. operating head 50 meter
- Max. Discharge: 3600 Lph
- Dry run, overload protections are inbuilt
- Tracker is an optional component and can be either manual, single axis or dual axis type.
- Up to 25% additional yield can be obtained with tracker.



Parameters	Models				
Module Capacity (Wp)	80 - 90	130 - 140	160 - 180	215 - 230	270 - 285
Module Size (L x W x H)mm	1203 x 528 x 35	1474 x 665 x 35	1598 x 798 x 42	1640 x 995 x 50	1958 x 995 x 50
Module Weight (kg) (+ 10%)	8	12	18	20	24
Peak Power (Pmax)	80 - 90	130 - 140	160 - 180	215 - 230	270 - 285
Tolerance of Pmax (%)	± 3	± 3	± 3	± 3	± 3
Open Circuit Voltage [Voc (V)]	21.4 – 22.2	21.6 – 22.2	42.7 – 44.4	36.0 – 36.6	43.9 – 44.5
Short Circuit Current [Isc (A)]	4.96 – 5.32	7.90 – 8.30	4.96 – 5.35	7.90 – 8.10	8.03 – 8.20
Rated Voltage [Vmp (V)]	17.7 – 18.5	17.8 – 18.1	35.1 – 36.9	29.4 – 30.4	36.1 – 37.0
Rated Current [Imp (A)]	4.55 – 4.85	7.33 – 7.77	4.56 – 4.88	7.33 – 7.56	7.50 – 7.72

Warranty : Two years manufacturer's warranty against manufacturing defects in material and workmanship.

Ten years manufacturer's warranty for module performance of minimum 90% power output.

Note: The data represent a range and is obtained under standard Test Conditions.

Modules are priced & sold on the basis of maximum wattage (Pmax) recorded in our auto generated computerized test certificate.

The information given about Jain Irrigation Systems Ltd.'s (JISL) products is without any obligation. The technical data concerning JISL's products are typical values subject to alteration. JISL reserves the right to re-design or modify their products without incurring further liability.

Jain Green Energy - Venture with Nature



Jain Renewable Energy, Jalgaon (MS)

The Company

Jain Irrigation Systems Ltd., is a diversified entity with turnover in excess of Rs. 4250 crores. We have a Pan-India & Global Presence with 26 manufacturing bases spread over 4 continents. Our products are supplied to over 116 countries with able assistance from more than 6700 Dealers and Distributors worldwide. We are the second largest Micro Irrigation company in the world. Our businesses include Complete range of Micro Irrigation Systems and Components, PVC and PE Piping Systems, PVC and Polycarbonate Sheets, Solar Water Heaters and Solar Lighting, Processed Fruit & Vegetable, Tissue-Culture, Green Houses etc. We have the distinction of being the largest processor of Thermoplastic Piping in India. Our unending efforts in the pursuit of excellence with ongoing Research and Development have earned the Company the highest R & D awards of the country apart from numerous other awards and recognition for our performance in Exports, Fair Business Practices, Quality, Excellence, Innovation, Environment, Product development etc.

Jain Renewable Energy

Jain Renewable Energy division is working with Solar thermal, Solar photovoltaic, Wind, Solar + Wind Hybrid systems and bio-energy related manufacturing and application development. The current product range includes domestic, commercial and industrial Solar powered Pumping systems, CFL/LED based lanterns, CFL/LED based home lighting, CFL/LED based street lighting, blinkers, advertising boards, power packs (inverters), traffic signals, wind + solar hybrid systems, biogas plants and turnkey projects based on all the above technologies. Jain solar powered pump is a new addition to this family. All these products are in harmony with the group's mission, "LEAVE THIS WORLD BETTER THAN YOU FOUND IT".

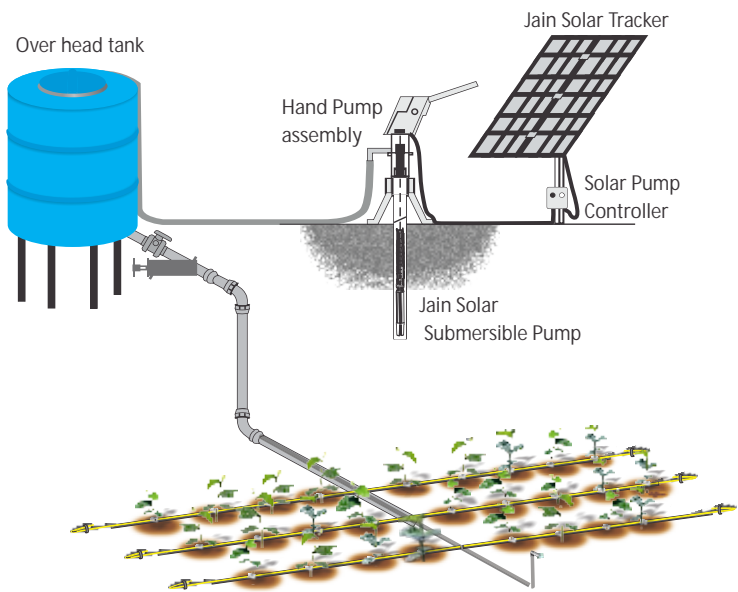
Jain Solar Powered Pumping systems are empaneled with MNRE. The JAIN PV solar panels & accessories required in Solar Pumping Systems are exclusively manufactured and supplied by us under our warranty. At present, pump sets have been manufactured by overseas top solar pump-set industry leaders. They are tested, supplied & warrantied by us and will also be serviced in India by our country-wide distribution network.



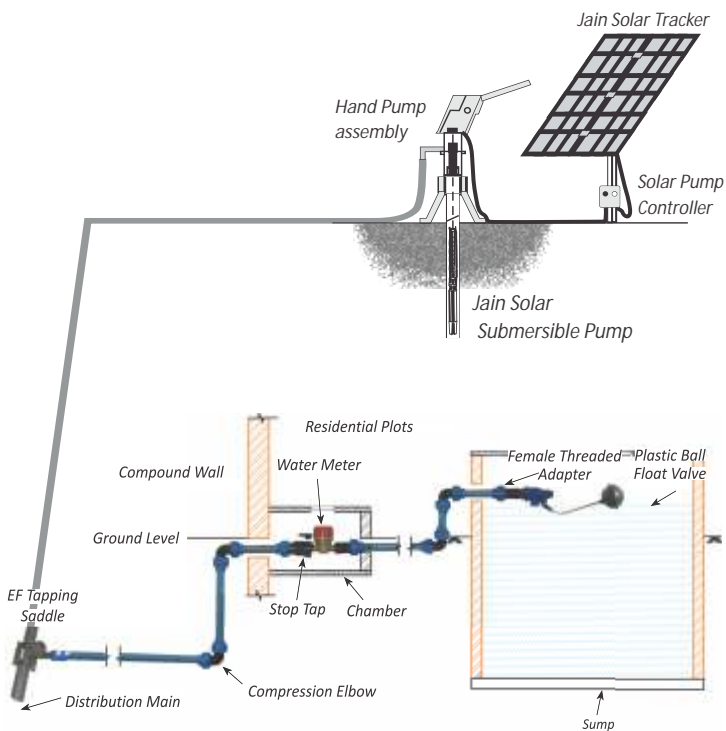
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Gravity Drip Irrigation Systems



Drinking Water supply for colonies, schools, etc.



Village Drinking Water supply scheme



Community Drinking Water supply

