



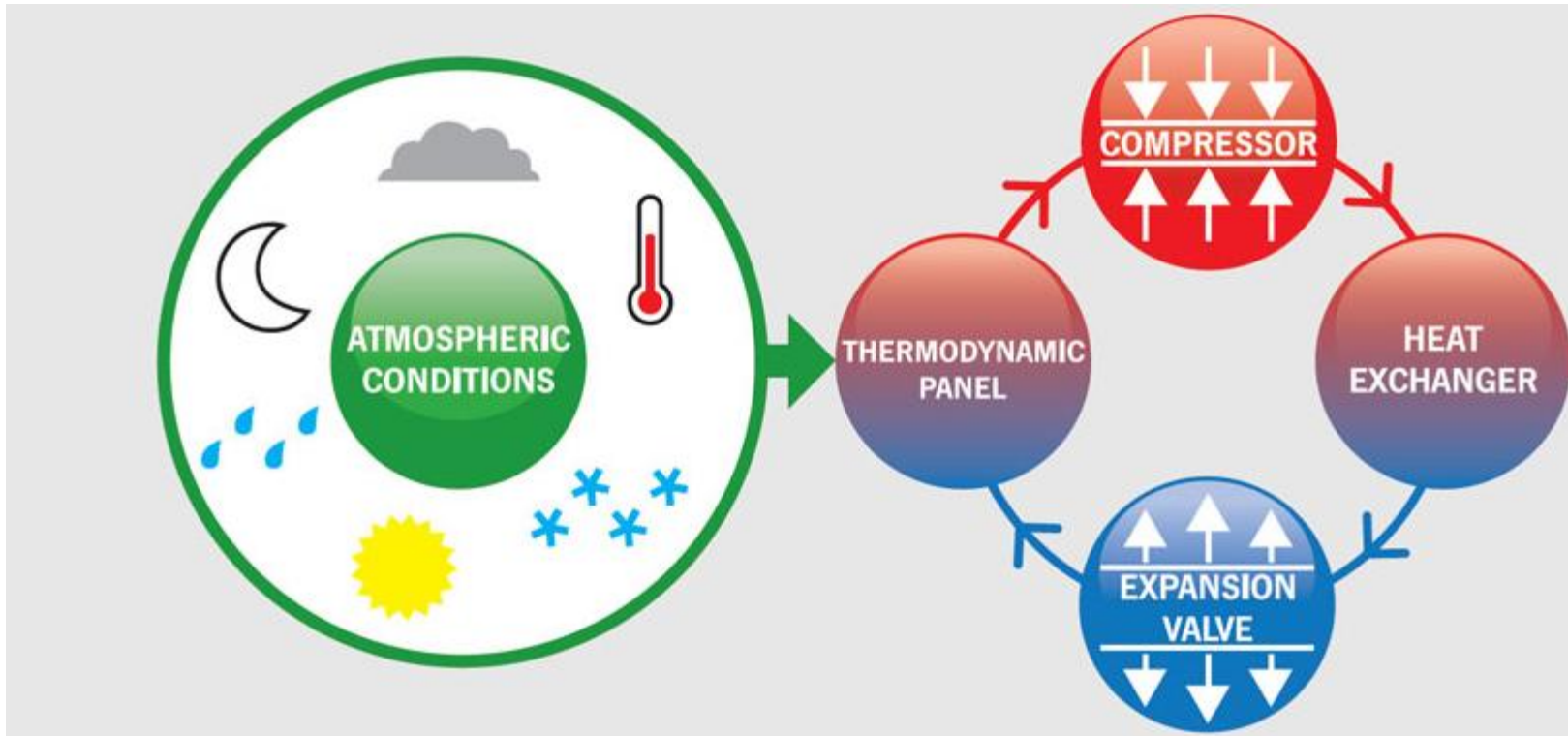
ABSORB | ENGENDER | ABUNDANCE

Solar Assisted Heat Pump



Check warranty Conditions

Ideology



Provides Hot Water Day and Night
in all weathers 365 days a year



PERFORMANCE

EFFICIENCY

QUALITY

**WE WORK EVERYDAY ON WINNING
SOLUTIONS FOR YOUR COMFORT AND
WELL-BEING**



Introduction

Solar Assisted Heat Pump or Thermodynamic Hot Water System is a unique Innovation, which joins the two failure technologies and converts a technology which will provide the hot water with the highest coefficient of performance from any other successful technology.


The unique product consists of a Solar Box, & Solar thermal collector who gets the heat from the atmosphere and transfers it into hot water vented / unvented cylinder



Product Components

Solar box

Solar thermal collector

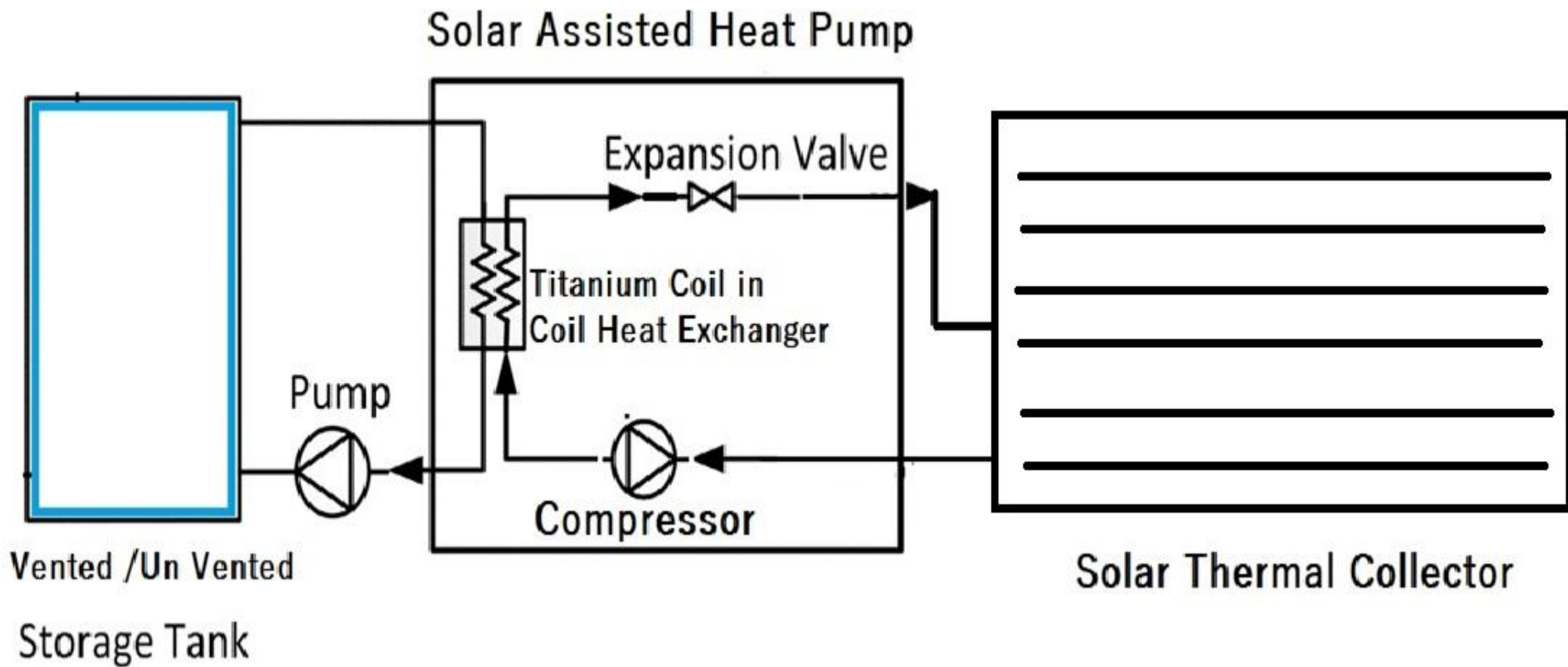


Principal of Thermodynamics

The first law, also known as Law of Conservation of Energy, states that energy cannot be created or destroyed in a chemical reaction.

Latent heat is energy released or absorbed, by a body or a thermodynamic system, during a constant-temperature process that is specified in some way. An example is **latent heat** of fusion for a phase change, melting, at a specified temperature and pressure.

Product Flow Principal





Working Principal

- ❖ The Solar Assisted Heat Pump joins two incomplete technologies, the heat pump and the solar thermal collector.
- ❖ Heat pumps are quite efficient but the heat they produce from their renewable component varies only according to oscillations in the temperature of the environment.
- ❖ Solar thermal collectors are the best source of heat on hot and sunny days but they are totally inefficient whenever there is no sun.



Working Principal

The Solar Assisted Heat Pump technology, through an identical physical diagram to that of a regular solar thermal system with forced circulation and sharing some of the components of a heat pump, managed to surpass the limitations of the referred two incomplete technologies.

The cooling liquid (R134a or R407c) which covers a closed circuit, goes into the solar panel and suffers the action of sun, rain, wind, environment temperature and other climate factors. During this process, the liquid gains heat in a more favourable way than a heat pump.



Working Principal

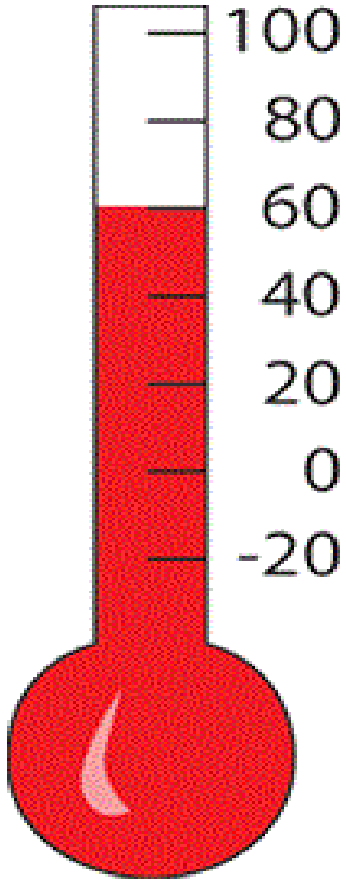
After this stage, the heat is transferred to an exchanger with the help of a small compressor, which heats the water. The liquid cools down and the circuit is repeated.

As the fluid has a boiling temperature of approximately -30°C , the system works even when there is no sun and also at night, providing hot water at 60°C , 24 hours a day, unlike the traditional thermal solar system.

System Schematic



Heat Water





Installation

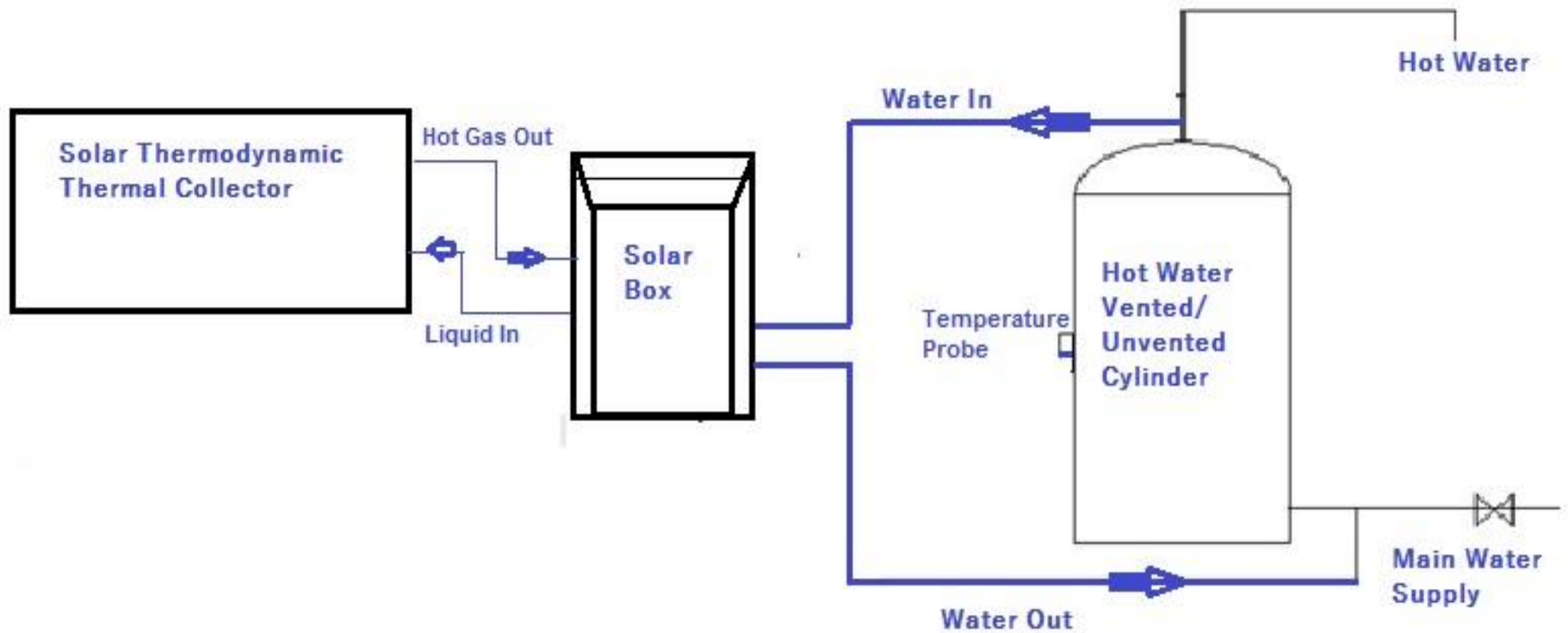
1. The installation of this product is very simple. We connect the cold feed into the machine and the hot feed out.
2. The cylinder fills with cold water and then a pressure valve closes. The water in the cylinder then circulates through the Solar Box until it reaches 60°C.
3. Once this is achieved the systems goes into standby mode and then only consumes a nominal 5 w an hour.



Installation

4. This means that the existing cylinder is used and does not need to be replaced (unless there is an existing combi boiler in which case we would add a cylinder.)
5. The retrofit installation takes up to one day including cylinder.

Installation Schematic





Compatibility

The possibility of adapting the existing installation without the need for civil construction works.

Heat is captured through solar radiation, environment temperature, rain, wind and even snow

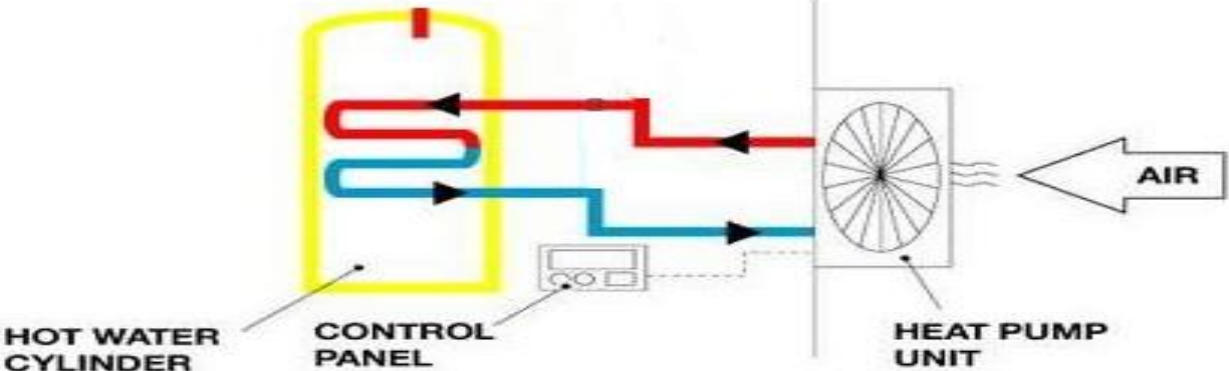
The heat produced on colder days, even at night is sufficient to attain the desired water temperature

The solar thermal collectors are light, discreet and have versatility regarding installation

Differentiate with Solar Thermal

Solar Thermal	Solar Thermodynamic /SAHP
Regular Maintenance Require on an Interval of three years	No Maintenance Require Sealed System
Direct Sunlight Require	No Direct Sun Light Require
Only Install in South Direction	Can be install in any Direction
Work in Summer Days When Hot water not require	Work in all days , even in night
Install on roof	Install on wall
Provide 30% of your hot water requirement	Provide 100% Hot water requirement
Require Special Cylinder with Coil	Retrofit with Existing Cylinder

Advantage Over Air Source Heat Pump



Absorb surface temperature which is higher than air temperature

is more efficient and more environmental friendly

Solar Thermo-dynamic Box

Solar thermodynamic thermal collector



Advantage Over Magic Thermodynamic /Other Suppliers

Particulars	Arkaya Solar Assisted Heat Pump	Another Retrofit Model Available in Market				
Models	Three Model	Only One Model				
	E.I	T.O	Panel	E.I	T.O	Panel
	300W	1.8kW	1	300w	1.8Kw	1
	450W	2.8kW	2			
	600W	5kW	3			
Technology	Thermodynamic Specially design for heating	Thermodynamic but reverse of refrigeration process				
Connection	All Refrigeration/ Water Connection is outside of box	All Refrigeration/ Water Connection is inside of box				
Compressor	Hitachi Highly Heat Specially Design for heating	Refrigeration Compressor design for cooling not for heating purpose				
Heat Exchanger	Titanium Coil in Coil with maximum surface	Flat plate heat exchanger with limited surface				



Advantage Over Magic Thermodynamic /Other Suppliers

Particular	Arkaya Solar Assisted Heat Pump	Another Retrofit Model Available in Market
Expansion Valve	Electronic for long life with digital control	Thermal
Noise Level	Lower than every one	Much Higher
Digital Controller	Touch Screen Controller Even Customer can diagnose the error fully computerized	Only Show water temperature
Kick Electric Start	As temperature of water lower than 35°C its automatically start electric heating source	No Such Function Available
Protection Level	IP65	N/A
Installation	Indoor / Outdoor	Only Indoor

Specification

Model		AR-KC30	AR-KC50	AR-KC100
Heating Capacity	W	1800	2800	5000
Heating Capacity min/max	W	900/2250	1400/3500	2500/6250
Suggested water tank capacity	L	60-150	150-260	200-320
Heated Water output (20°C ~50°C)	L/h	52	80	143
Rated outlet water temp	°C	55		
Max outlet water temp	°C	60		
Rated power input	W	300/500	460/780	850/1400
Rated current input	A	2.15	3.35	5.98
Power Supply	V/Hz/Ph	220-240V/50Hz/1Ph		
Compressor type	/	Rotary		
Heat exchanger type	/	High efficiency tube in shell heat exchanger		
Throttling device	/	Emerson thermal expansion valve		
Number of Panel	/	1	2	3
Liquid Line	POL	φ9.52	φ9.52	φ9.52
Suction Line	POL	φ12.7	φ12.7	φ12.7
Refrigerant	/	R134A		
Noise	dB(A)	43	43	43
Water pipe connection size	inch	Rc3/4	Rc3/4	Rc3/4
Cabinet	/	Galvanized powder coated steel		
Product net weight	Kg	27	30	35
Product Dimension	mm	310x365x565	310x365x565	310x365x565

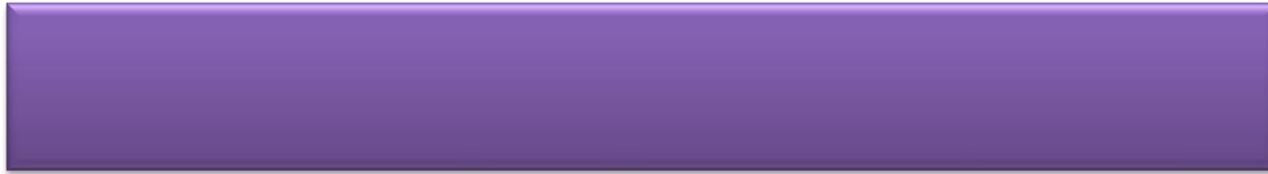
Solar Thermal Collector

Model	Material	Thickness	Size	Weight
AR20.08 L/R	Aluminium	1.5mm	2100x810 mm	10.7 kg
AR20.08 L/R	Aluminium	2.0mm	2010x810 mm	12.1kg
AR17.08	Aluminium	1.5mm	1710x 810 mm	9.2 kg
AR17.08	Aluminium	2.0mm	1710x 810 mm	10.4 kg
AR16.08	Aluminium	1.5mm	1650x800 mm	8.9kg
AR15.07	Aluminium	1.5mm	1535x750 mm	8.05 kg
AR15.08	Aluminium	1.5mm	1570x820 mm	8.88 kg
AR15.09	Aluminium	1.5mm	1585x945 mm	10.3kg

Double Solar Thermal Collector




Colour of Solar Thermal Collector





Advantage Over Other Supplier Thermal Collector

Particular	Arkaya Panel	Other Panel
Brand	Arkaya	Non Branded
Weight	12 Kg	7 Kg
Pressure Bearing Capacity	40 Bar	12 Bar
Material Thickness	2.0 mm	1.4 to 1.6 mm
Strength	More Tensile	Low Tensile



To be the best what is used...and why it is used...?

❖ **Compressor-** Hitachi made mechanical device used for high potency and dependability which gives increased coefficient of performance.

❖ **Heat Exchanger-** Titanium coil in coil heat and heat exchanger with maximum heat used for higher efficiency and work from 0 to 12 bar of working pressure.

❖ **Expansion Valve-** Electronic expansion valve with high efficiency expansion value for maximum output throughout the cycle.

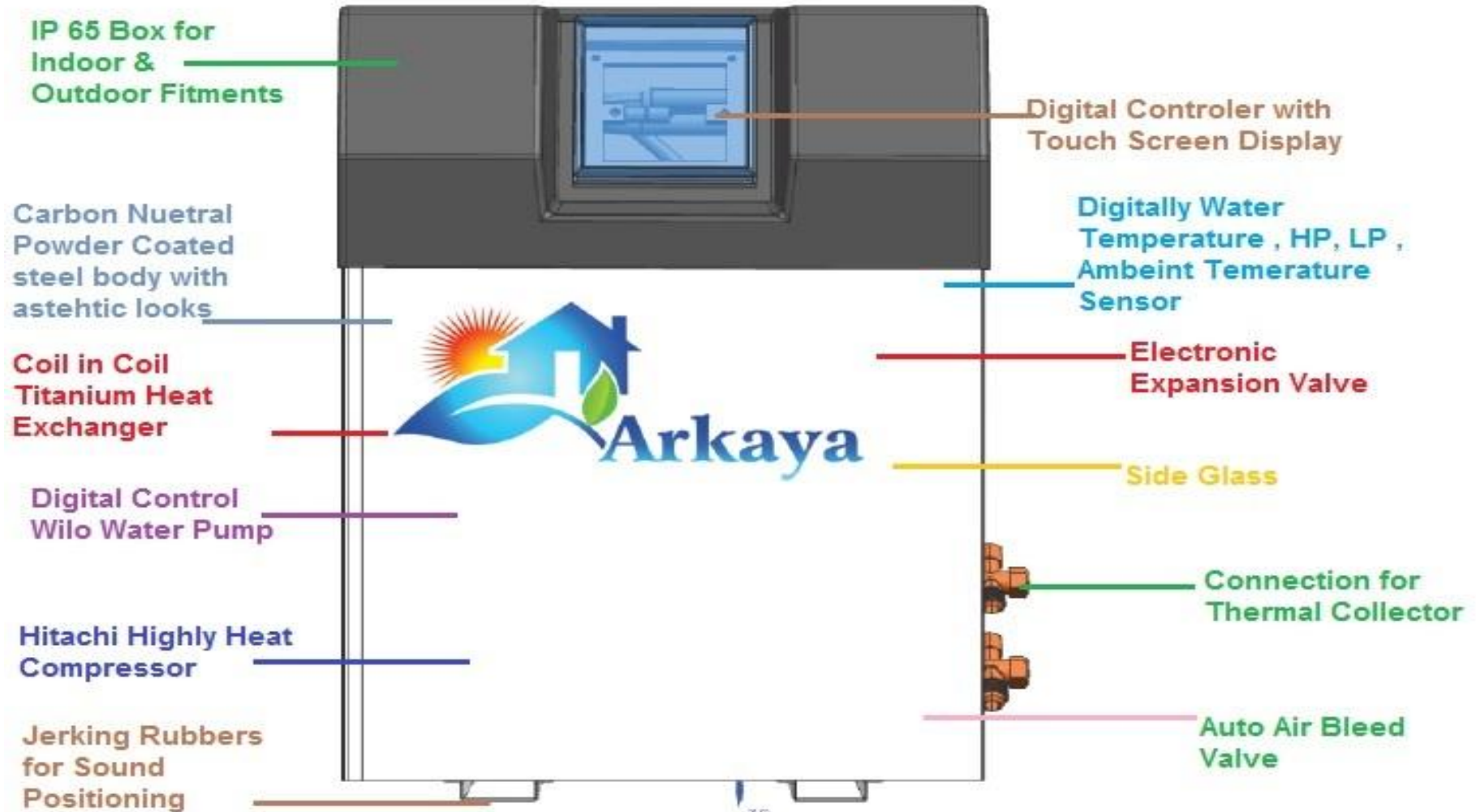


To be the best

what is used...and why it is used...?

- ❖ **Circulation pump:-** Latest leading technology for potable water applications, WRAS approved as well.
- ❖ **Digital controller:-** Digital touch screen controller with five sensors to perform to maximum ability in temperature up to -30 degrees.
- ❖ **Vibration moulds-** These are in placed inside to reduce the vibration to minimal and so reduce the noise.


Internal Components





What you gain

- ✓ Tested and tried technology for UK weather
- ✓ Retro fit model
- ✓ Heats hot water up to 60 degrees Celsius day and night in all weather conditions
- ✓ Environmentally friendly with greatly reduces carbon emission
- ✓ Perfect with both vented and unvented storage



What you Gain

- ✓ Minimum to no maintenance required
- ✓ Panels to be mounted on external walls or roof
- ✓ 5 year makers guarantee
- ✓ Environmentally friendly fluid is used
- ✓ Sensors allowing use of electric element to provide hot water urgently.

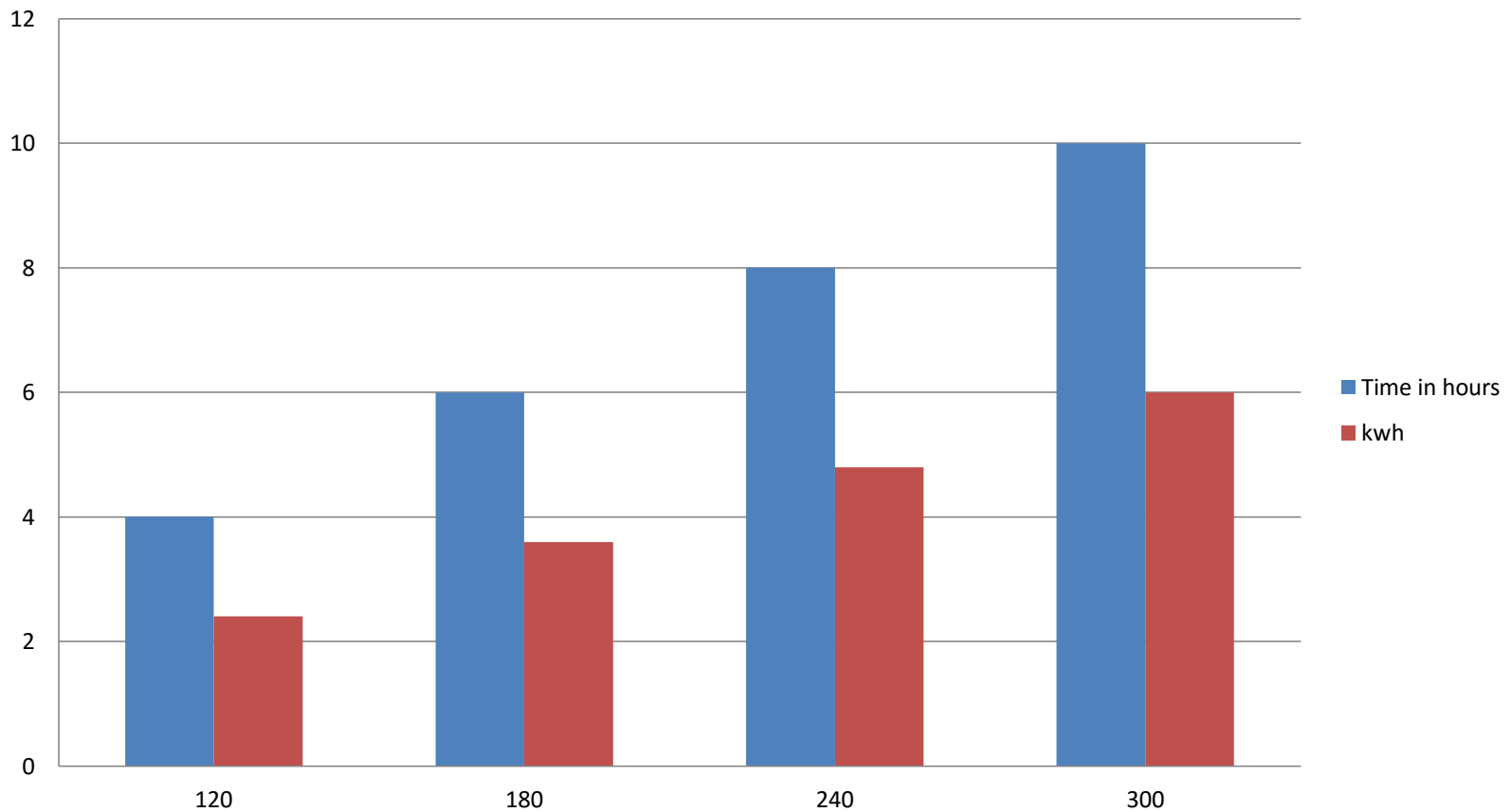
Kick Electric Start

Kick Startup Electric
Element as the water
temperature goes down to
35 Degree Celcius

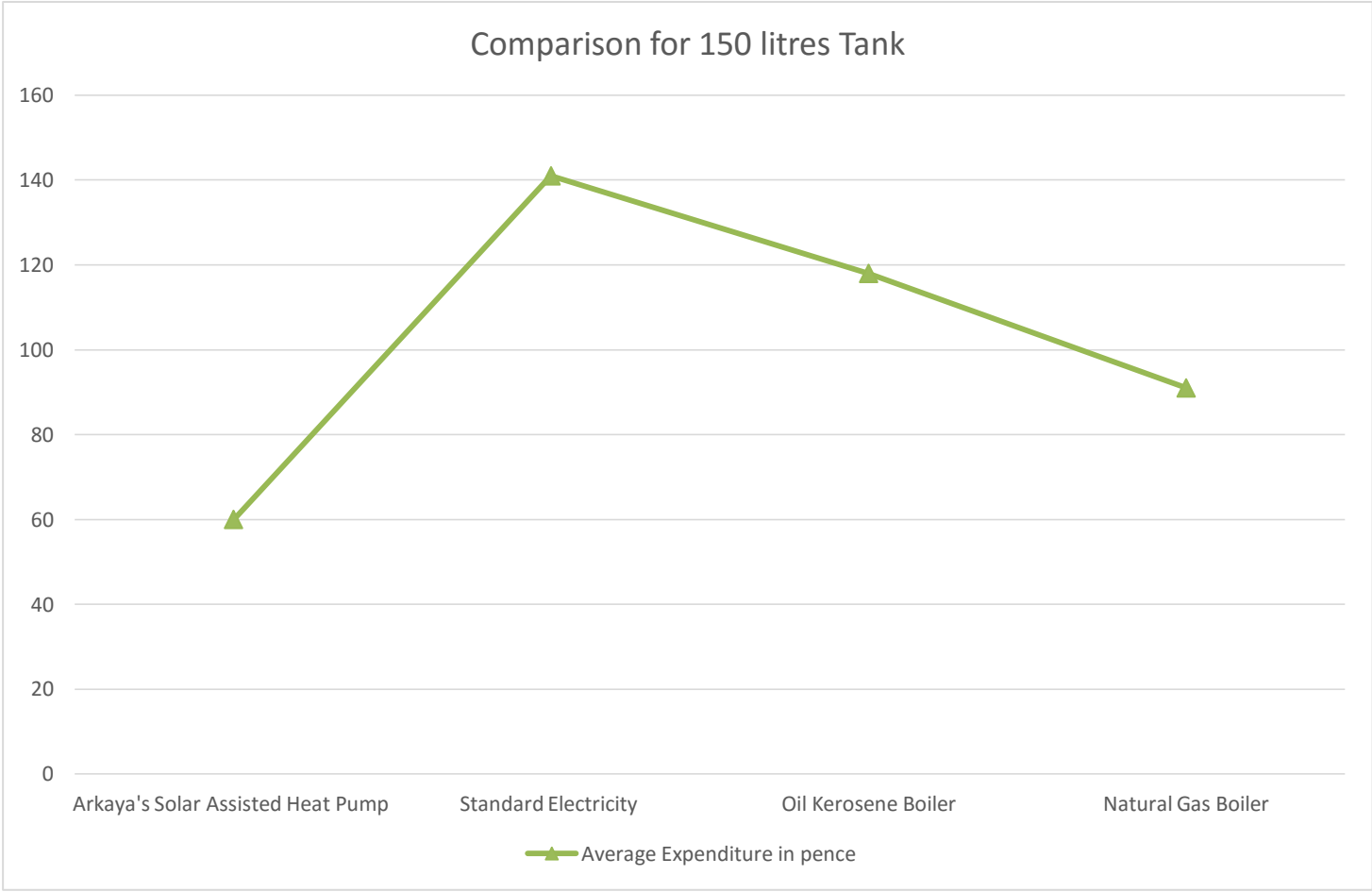


Time & Energy Consumption

Time & Energy Consumption Of SAHP



Running Cost



Made In India

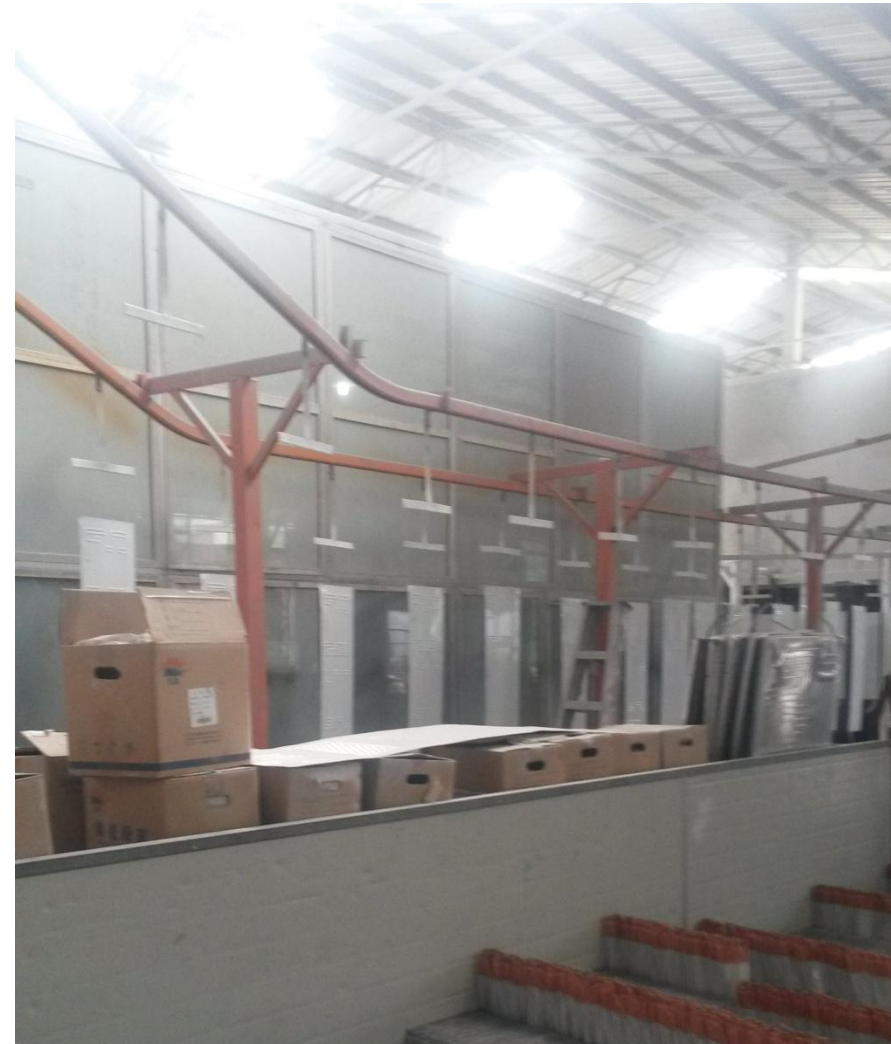
made in
india



Production Facility



Production Facility



Production Facility



Production Facility



Production Facility





Technical Survey

A technical engineer will visit your property within 24 to 48 hours, including all measurements and plans of the Installation before contacting installation head office for a suitable date of installation, and head office will process all the survey documents and communicate with the customer the day before the facility informing an approximate time of arrival.



Installation

The Fitter will arrive at the property with all the machine & material to carry out a full installation; The fitter will do a full demonstration of the system and controls to ensure you are familiar with your new solar-assisted heat pump hot water system



Quality Control

We will arrange for our post installation quality control inspector to visit and inspect and check to ensure your system is performing at its optimum level and go through any questions you may have.

Insurance



Product Liability Insurance:-

Our All Products are covered by Product Liability Insurance , So their is no issues if some thing goes wrong due to Product Performance Equipments

Public Liability Insurance:-

Our All Products Installation & Service are covered by Public Liability Insurance , So their is no issues if some thing goes wrong due to Product Installation & Performance Equipments



Upcoming
Product

All in One Thermodynamic Water Heating System



It's almost here.



About Arkaya

Arkaya Limited is one of the UK's leading manufacturers of Solar Assisted Heat Pumps & hot water systems with a unique reputation for quality and service. As a privately owned, independent manufacturer of Solar Assisted Heat Pump & hot water cylinders mainly domestic and industrial hot water cylinders and thermals stores in Direct, Indirect and Combination version.

This is reflected in our extensive product range and our ability to customise any cylinder to your needs, whether it's a one-off bespoke cylinder or a large contract which would benefit from custom sizes or connection for ease of installation.

Accreditations





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