

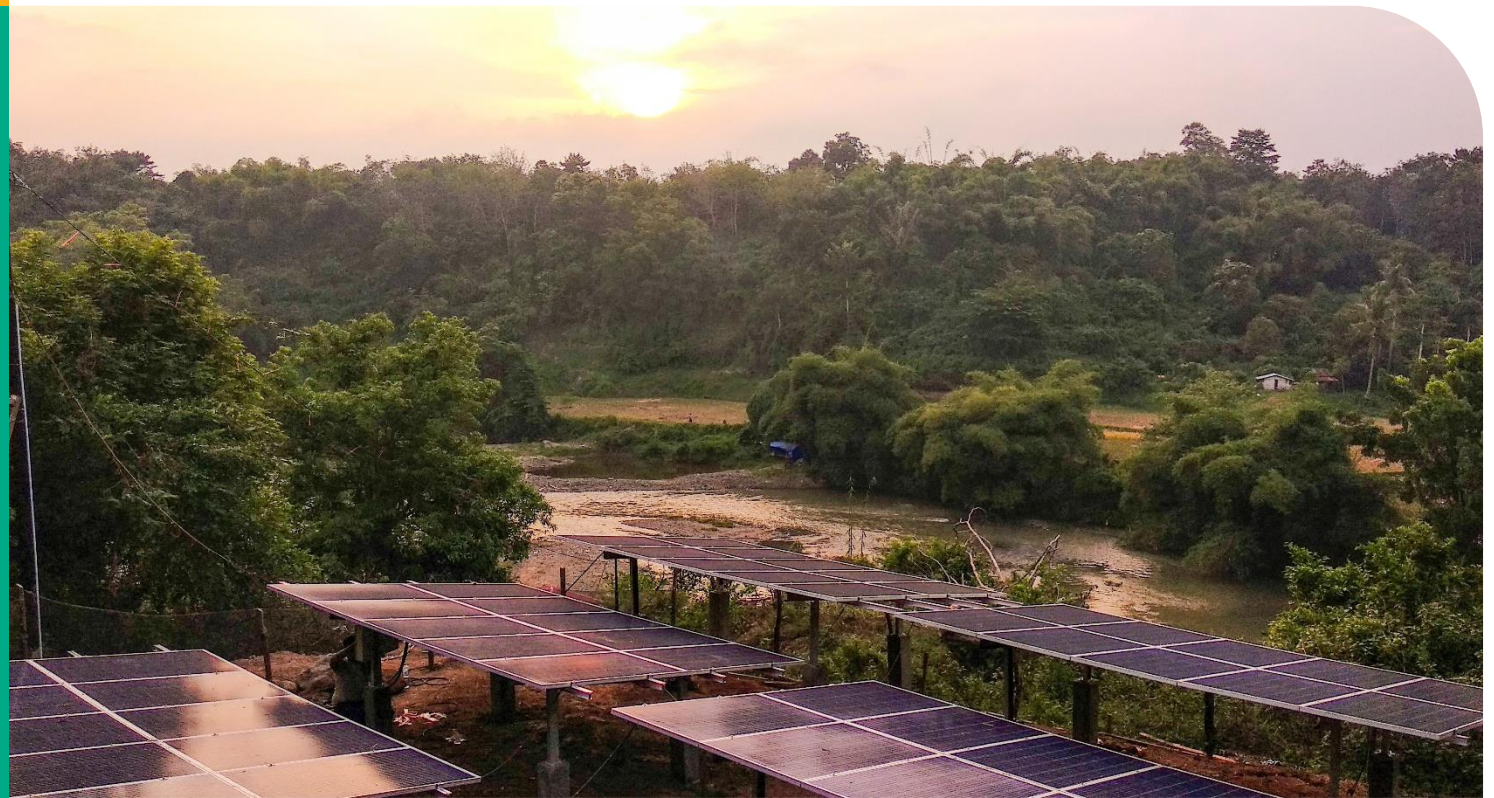
Pioneering for You

wilo

Product brochure

Wilo-Solar Pumping System

Autonomous, optimised water supply using solar power



Raw water intake with solar power

Water supply for remote areas

Water demand is growing worldwide. Reliably supplying the precious resource in arid and remote regions not connected to the power grid is a challenge. Wilo provides a safe, cost-effective raw water intake even in challenging

conditions – thanks to the new Wilo-Actun OPTI water supply solution driven by solar power.

Wilo-Actun OPTI offers a sophisticated solution that is independent from the power grid featuring many convincing advantages for our customers:



Optimised water output



Operational reliability and convenience



Reduced operating costs



Thanks to Wilo-Actun OPTI, irrigation becomes autonomous

Efficient water supply for agricultural purposes

In particular in the world's dry regions, agriculture and livestock farming is facing the growing challenge of water scarcity. Suitable areas are often located in remote areas without connection to the necessary infrastructure. However, conventional submersible pumps require a reliable energy supply, either via the local power grid or by using diesel generators. In most cases, this cannot be guaranteed in rural areas as a result of unstable power grids and a lack of adequate road infrastructure for diesel transport.

The solution is to use solar power as the submersible pump's power supply. Combining a photovoltaic system and a submersible pump provides a cost-effective, reliably operating and autonomous system for efficient irrigation in agriculture and livestock farming.

Integrated Maximum Power Point Tracking additionally guarantees maximum water output and efficiency. Depending on the exposure to sunlight, but also in cloudy skies – depending on the time of day, location and weather – the integrated microprocessor calculates the ideal ratio of voltage and electric current to deliver maximum performance. These parameters are then transformed into higher pump speeds and thus a greater supply of water. Thanks to the option to connect to AC power sources, Wilo-Actun OPTI-MS guarantees ideal water output for each growth phase of the food crop – even at night.



Scan the photograph below with the Wilo-Assistant app to find out how we guarantee the water supply even with a diffuse exposure to sunlight.



Autonomous drinking water supply for small settlements

Our solution for reliable drinking water pumping

In rural regions and developing countries, connecting to the local water supply network is often impossible or, quite simply, there is no local water supply network to connect to. Inhabitants of these settlements must often cover long distances to reach a well or transport diesel to operate a pump. This is time-consuming, costly and inefficient.

The solution here is once again a raw water intake from boreholes. In this context, the Wilo-Actun OPTI submersible pump guarantees optimum water supply in any weather thanks to its high motor and hydraulics efficiency as well as dynamic Maximum Power Point Tracking (MPPT). The Wilo-Actun OPTI gives our customers an invaluable advantage over other solar-powered submersible pumps on the market. For the same solar radiation intensity and the same configuration of photovoltaic modules, Wilo-Actun OPTI can pump more water – and thus supply more households.

By using water towers as buffers, it is possible to supply and store a sufficient amount of water during the day to also guarantee supply during the night – without having to rely on costly battery systems. Float switches can also be directly connected to the pump and fill buffers without having to use additional switchgear. In addition, the autonomous system solution for solar-powered water extraction is very convenient with respect to its installation, commissioning and maintenance.

Owing to the integrated frequency converter, the Wilo-Actun OPTI is easy to connect electrically.



Find out more about night-time water supply by scanning the photograph below using the Wilo-Assistant app.

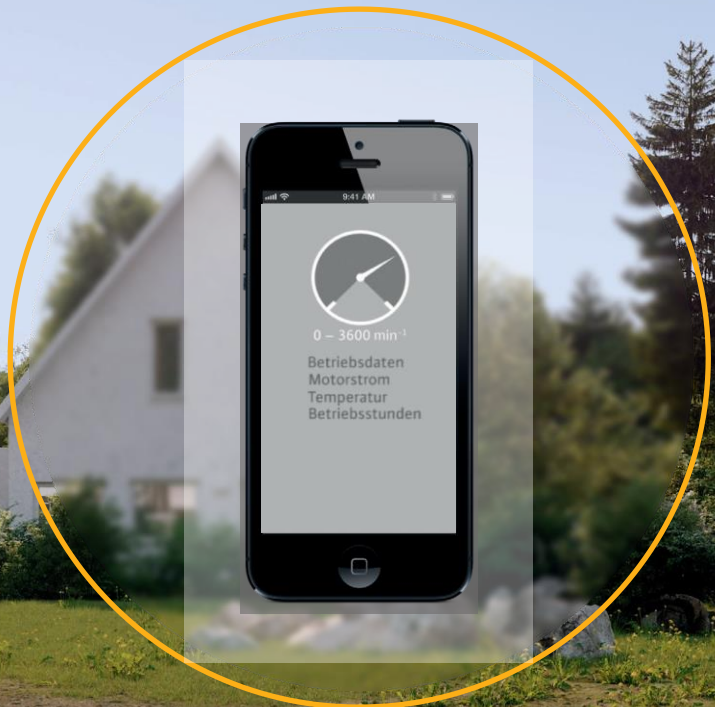


Sustainability and networking in one convenient solution

Thanks to Solar-Connect, convenience and operational reliability lie in your hands

Intelligent networking, handling scarce resources and convenient operation by smartphone are three vital benefits of Solar-Connect in the Wilo-Assistant app. Operators of Wilo-Actun OPTI-MS can consequently access their pump from anywhere.

- Quickly gain an overview of the water supply.
- Verify an adequate water supply on the basis of all required performance data.
- Initiate suitable measures on the basis of fault identification.
- Check the operating status on the go for an efficient water supply.
- Thanks to the start/stop function, operation is user-friendly.
- Quickly find out about changes in operating status by push notifications.



Scan the QR code using a smartphone or tablet PC to open the Wilo-Assistant app in the App Store or Google Play Store, download it and benefit from a sustainable and networked solution.



Optimum flow rate, easy installation, maximum reliability

Many benefits, one solution: Wilo-Actun OPTI

Reliable water extraction in remote regions is now autonomous:

Wilo-Actun OPTI offers a reliable solution for a completely autonomous water supply running on solar power.

→ Optimum water output

Dynamic Maximum Power Point Tracking (MPPT) featured in Wilo-Actun OPTI also ensures permanent, maximum water output even in poor weather conditions.

→ Maximum efficiency

The high hydraulic efficiency and maximum efficiency of the permanent magnet motor guarantee ideal water supply at almost no operating costs.

→ Easy commissioning

Thanks to the integrated frequency converter, the pump must no longer be configured during commissioning and is thus immediately ready for operation following the simple electrical connection.

→ Maximum service life and operational reliability

High-grade stainless steel, encapsulated motor versions and mechanical seal guarantee a long service life. Inbuilt safety features protecting against overheating, excess current, overvoltage and under-voltage as well as dry running protect the system from damage.



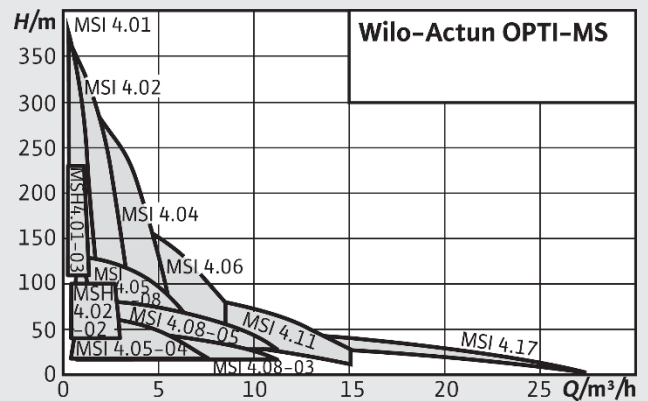
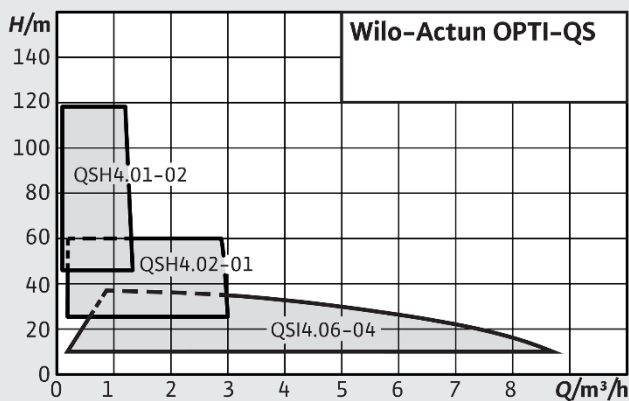
Wilo-Actun OPTI: facts and figures

So much power in our solar-powered submersible pumps

Wilo-Actun OPTI is available in the QS (Quick Solar) and MS (Multipower Solar) versions.

Wilo-Actun OPTI-MS can be operated with DC at voltages of 90 to 400 V and with AC at voltages between 90 and 265 V.

The QS version is exclusively suitable for DC operation with voltages between 70 and 190 V.



More functionality for Wilo-Actun OPTI-MS thanks to Wilo-MS Control:

Always an eye on important operating parameters

- Remote monitoring and control functions
- Monitoring of electrical parameters (current, performance, voltage)
- Records and saves all alarm signals during operating hours
- Connection to a pressure or flow sensor to control the pump
- Connection to a pressure or float switch
- Digital alarm output for remote control
- Installation in humid and dusty environments possible thanks to IP55 protection class



Wilo-MS Control

Other solutions for raw water intake

The right solution for any demand

Wilo also offers matching solutions for a raw water supply in well developed areas. Wilo-Sub TWI for boreholes is suitable for drinking water supply from boreholes between 4 and 10 inches.



Design

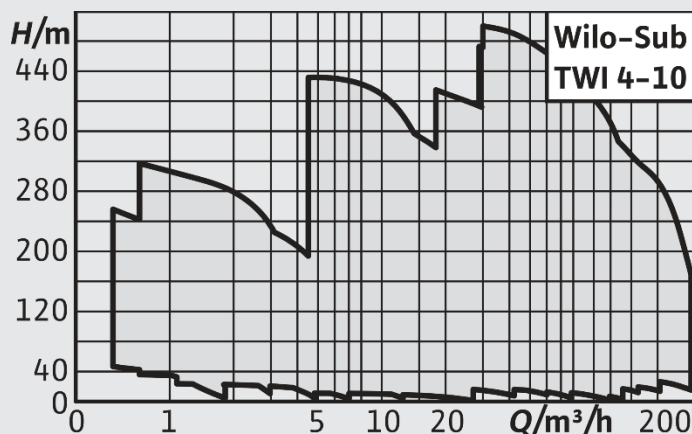
Multistage submersible borehole pump

Application

- For water and drinking water supply from boreholes and rainwater storage
- Process water supply
- For municipal water supply, sprinkling and irrigation
- Pressure boosting
- Lowering the water level
- For pumping water in industrial applications

Special features/product advantages

- Optimized hydraulics with efficiency of up to 80%.
- Long service thanks to corrosion-resistant stainless steel, optionally in V4A quality
- Easy maintenance due to quick installation and dismantling



Materials (Series)	TWI 4	TWI 6	TWI 8	TWI 10
Hydraulic housing	1.4301 Stainless steel			
Impellers	1.4301 Stainless steel			
Hydraulic shaft	1.4057 Stainless steel			
Motor housing	1.4301 Stainless steel	EN-GJL or 1.4301 Stainless steel		
Motor shaft	1.4305 Stainless steel	1.4305 or 1.4301 Stainless steel	1.4021, 1.4301 or 1.4305 Stainless steel	1.4542 or 1.4462 Stainless steel

Other solutions for water distribution

The right solution for any demand

Wilo-Helix both First V and V are available to be powered by solar energy.

Design

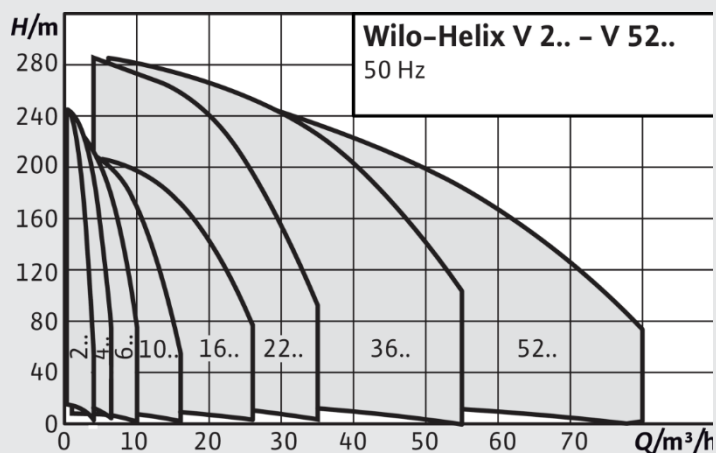
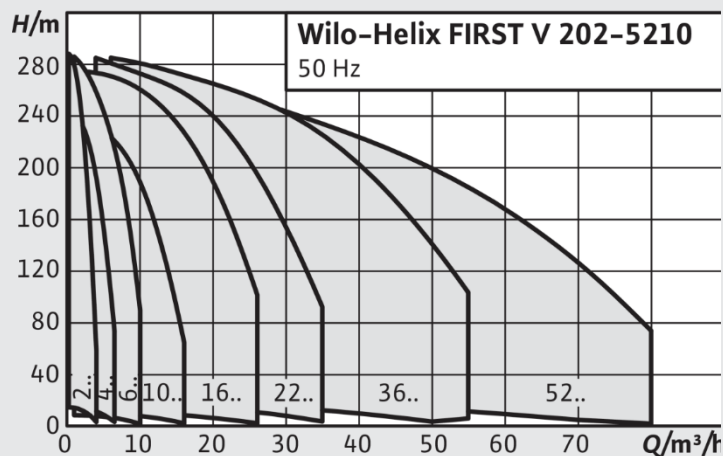
Multistage vertical pump

Application

- Water supply and pressure boosting
- Process water
- Cooling water circulation systems
- Washing systems
- Irrigation

Special features/product advantages

- Corrosion-resistant impellers, diffusors and stage housing
- Flow and NPSH-optimised pump housing
- Maintenance-friendly design with particularly robust coupling guard
- Drinking water approval for all parts that come into contact with the fluid (EPDM version)



Product in Application - Jakabaring

Wilo-Solar Pumping Inverter

Special features/product advantages :

- Support utility/generator input, strong environmental adaptability
- Compact design, easy to transport and install
- Various communication ports
- Perfect protection function, prevent dry pumping and spillage
- Advanced MPPT optimized design, fast response and high reliability
- Fully automatic intelligent operation, great overload capability, safe and stable
- IP65 protection grade, integrate with combiner box and distribution unit
- LCD screen, user-friendly interface



Product Range – 1 Phase

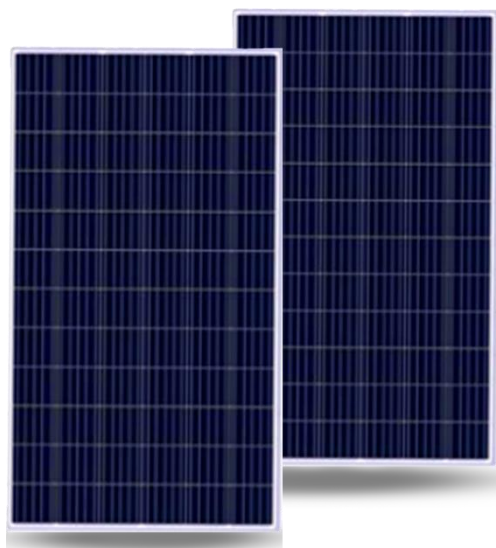
Technical Data	Spring 550-SLA	Spring 750-SLA	Spring 1100-SLA	Spring 1500-SLA	Spring 2200-SLA
PV Input					
MPP Trackers	1				
Max. Input Strings	1				
Start Voltage (Vdc)	80				
Max. Input Current (A)	9			11	
Max. Input Voltage (Vdc)	450			500	
MPPT Voltage Range (W)	100~360	100~360	150~360	200~400	270~400
AC Input					
Input Voltage Range (Vac)	220±15%				
Input Frequency Range (Hz)	50/60±5				
AC Output					
Rated Output Power (W)	550	750	1100	1500	2200
Rated Voltage (Vac)	220				
Output Voltage Range (Vac)	0~240				
Output Frequency (Hz)	0~50/60				
Max. Output Current (A)	5	6,3	8,6	10	14
General Data					
Protection Grade	IP65				
Dimension (D*W*H mm)	418*288*152			453*288*152	
Weight (kg)	7			8,5	

Product Range – 3 Phase

Technical Data	Spring 3000-SLA	Spring 4000-SLA	Spring 5500-SLA	Spring 7500-SLA	Spring 9200-SLA	Spring 11K-A	Spring 13K-A	Spring 15K-A	Spring 18K-5A	Spring 22K-A
PV Input										
MPP Trackers	1									
Max. Input Strings	2			3			6			
Start Voltage (Vdc)	250									
Max. Input Current (A)	9	11	12	19	22	24	31	32	38	46
Max. Input Voltage (Vdc)	900									
MPPT Voltage Range (Vdc)	500~680									
AC Input										
Input Voltage Range (Vac)	380±15%									
Input Frequency Range (Hz)	50/60±5									
AC Output										
Rated Output Power (W)	3000	4000	5500	7500	9200	11000	13000	15000	18500	22000
Rated Voltage (Vac)	380									
Output Voltage Range (Vac)	0~440									
Output Frequency (Hz)	0~50/60									
Max. Output Current (A)	8	10	13	18	21	24	28	30	39	45
General Data										
Protection Grade	IP65									
Dimension (D*W*H mm)	478*325*155			528*346*166			583*405*190			
Weight (kg)	12			14			22,5			

Product Range – 3 Phase

Technical Data	Spring 26K-A	Spring 30K-A	Spring 37K-A	Spring 45K-A	Spring 55K-A	Spring 75K-A
PV Input						
MPP Trackers	1					
Max. Input Strings	8	8	10	12	16	20
Start Voltage (Vdc)	250					
Max. Input Current (A)	53	64	78	108	114	160
Max. Input Voltage (Vdc)	900					
MPPT Voltage Range (Vdc)	500~680					
AC Input						
Input Voltage Range (Vac)	380±15%					
Input Frequency Range (Hz)	50/60±5					
AC Output						
Rated Output Power (W)	26000	30000	37000	45000	55000	75000
Rated Voltage (Vac)	380					
Output Voltage Range (Vac)	0~440					
Output Frequency (Hz)	0~50/60					
Max. Output Current (A)	54	60	75	91	112	162
General Data						
Protection Grade	IP65					
Dimension (D*W*H mm)	585*476*218		660*467*230	546*347*242		
Weight (kg)	23,5		26	28		



- High conversion efficiency
- Power tolerance of 0 ~ +3%
- Can withstand high wind-pressure, snow load and extreme temperature
- Passing IEC 61215 2400Pa mechanical load test solar power plants

- 12-years warranty on product materials and processing technology
- Power output warranty : 10 years : 90%, 25 years : 85%
- ISO 9001:2008 (Quality Management System) certified factory
- TUV, UL, CE, PID, IDCOL, IEC

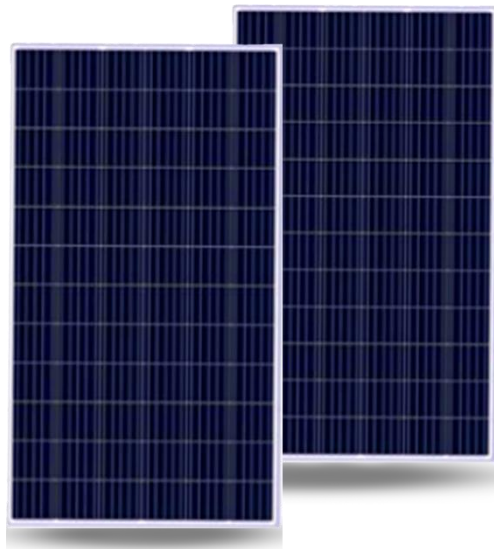
- On-grid residential roof-tops
- On-grid commercial / industrial roof-tops
- Off-grid system

[illegible]

Cell (mm)	156*156/156.75*156.75 Poly
Dimensions (mm)	1956*992*40
No. Of Cells (Pcs)	72(6*12)
Weight (kg)	23
Front Glass Thickness (mm)	3.2
Certified Wind / Snow Load (Pa)	2400 / 5400
Allowable Load	23 m/s, 7.53 g
Juction Box Type	Pass the TUV Certificate
Bypass Diode Rating (A)	20
Cable & Connector Type	Pass the TUV Certificate
Frame (Material Corners, etc)	40#
Backing (Brand Type)	TPT
Certifications	IEC 61215, IEC 61730

Module Type	YH300W-36P	YH305W-36P	YH310W-36P	YH315W-36P	YH320W-36P
Maximum Power at STC (Pmax)	300 W	305 W	310 W	315 W	320 W
Maximum Power Voltage (Vmp)	37.46 V	37.58 V	37.72 V	37.85 V	37.90 V
Maximum Power Current (Imp)	8.02 A	8.12 A	8.22 A	8.33 A	8.45 A
Open Circuit Voltage (Voc)	44.95 V	45.10 V	45.26 V	45.42 V	45.48 V
Short Circuit Current (Isc)	8.58 A	8.68 A	9.05 A	8.87 A	9.00 A
Temperature Coefficients of Pmax	-0,45% / °C				
Temperature Coefficients of Voc	-0,35% / °C				
Temperature Coefficients of Isc	-0,04% / °C				
Power Tolerance	+/-3%				

POLY 60CELLS



Key Features

- High conversion efficiency
- Power tolerance of 0 ~ +3%
- Can withstand high wind-pressure, snow load and extreme temperature
- Passing IEC 61215 2400Pa mechanical load test solar power plants

Quality and Safety

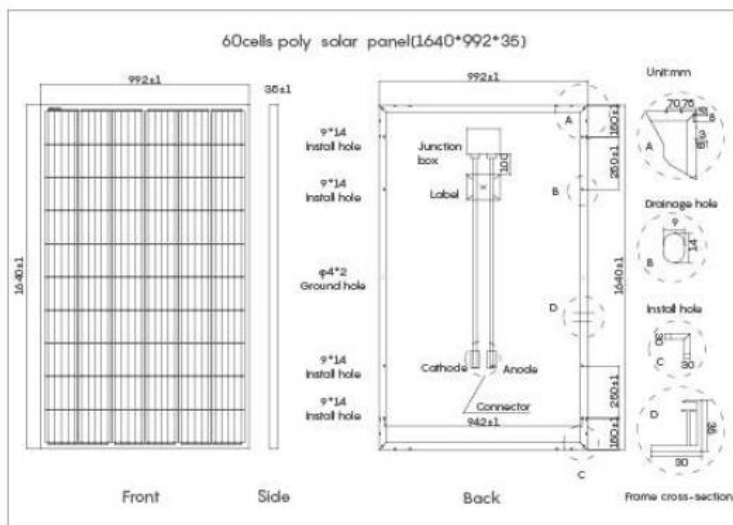
- 12-years warranty on product materials and processing technology
- Power output warranty : 10 years : 90%, 25 years : 85%
- ISO 9001:2008 (Quality Management System) certified factory
- TUV, UL, CE, PID, IDCOL, IEC

Applications

- On-grid residential roof-tops
- On-grid commercial / industrial roof-tops
- Off-grid system

Components & Mechanical Data

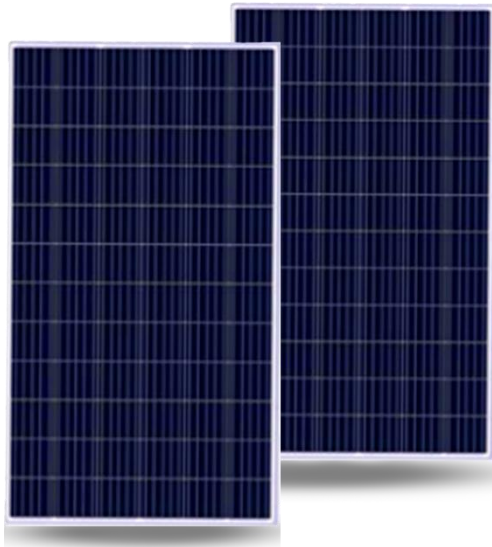
Cell (mm)	156*156/156.75*156.75 Poly
Dimensions (mm)	1640*992*40
No. Of Cells (Pcs)	60(6*10)
Weight (kg)	18.6
Front Glass Thickness (mm)	3.2
Certified Wind / Snow Load (Pa)	2400 / 5400
Allowable Load	23 m/s, 7.53 g
Junction Box Type	Pass the TUV Certificate
Bypass Diode Rating (A)	20
Cable & Connector Type	Pass the TUV Certificate
Frame (Material Corners, etc)	35#
Backing (Brand Type)	TPT
Certifications	IEC 61215, IEC 61730



Specification

Module Type	YH255W-30P	YH260W-30P	YH265W-30P	YH270W-30P	YH275W-30P
Maximum Power at STC (Pmax)	255 W	260 W	265 W	270 W	275 W
Maximum Power Voltage (Vmp)	31.18 V	31.70 V	31.96 V	32 V	32.01 V
Maximum Power Current (Imp)	8.18 A	8.21 A	8.30 A	8.44 A	8.60 A
Open Circuit Voltage (Voc)	37.07 V	38.04 V	38.35 V	38.40 V	38.41 V
Short Circuit Current (Isc)	8.75 A	9.03 A	8.84 A	8.99 A	9.16 A
Temperature Coefficients of Pmax	-0,45% / °C				
Temperature Coefficients of Voc	-0,35% / °C				
Temperature Coefficients of Isc	-0,04% / °C				
Power Tolerance	+/-3%				

MONO 72CELLS



Key Features

- High conversion efficiency
- Power tolerance of 0 ~ +3%
- Low degradation under light exposure
- Can withstand high wind-pressure, snow load and extreme temperature
- Passing IEC 61215 2400Pa mechanical load test

Quality and Safety

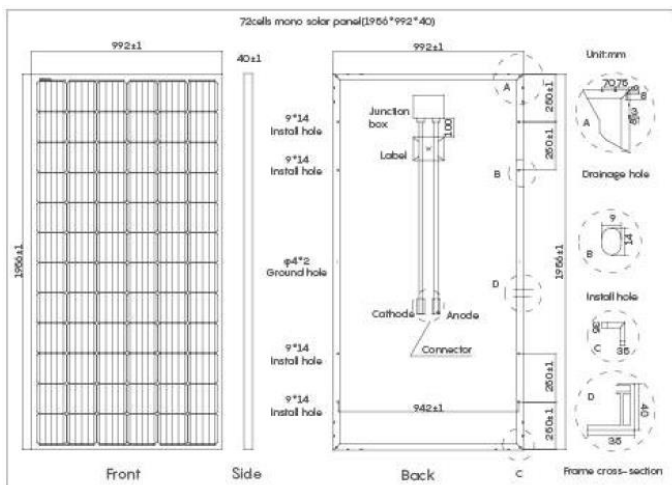
- 10-years warranty on product materials and processing technology
- Power output warranty : 10 years : 90%, 25 years : 80%
- ISO 9001:2008 (Quality Management System) certified factory
- TUV, CE conformity

Applications

- On-grid residential roof-tops
- On-grid commercial / industrial roof-tops
- Off-grid system

Components & Mechanical Data

Cell (mm)	156*156/156.75*156.75 Mono
Dimensions (mm)	1956*992*40
No. Of Cells (Pcs)	72(6*12)
Weight (kg)	23
Front Glass Thickness (mm)	3.2
Certified Wind / Snow Load (Pa)	2400 / 5400
Allowable Load	23 m/s, 7.53 g
Junction Box Type	Pass the TUV Certificate
Bypass Diode Rating (A)	20
Cable & Connector Type	Pass the TUV Certificate
Frame (Material Corners, etc)	40#
Backing (Brand Type)	TPT
Certifications	IEC 61215, IEC 61730



Specification

Module Type	YH300W-36M	YH260W-30P	YH265W-30P	YH270W-30P	YH275W-30P
Maximum Power at STC (Pmax)	300 W	320 W	330 W	340 W	350 W
Maximum Power Voltage (Vmp)	36.08 V	38.64 V	30.03 V	39.12 V	39.28 V
Maximum Power Current (Imp)	8.32 A	8.29 A	8.46 A	8.71 A	8.92 A
Open Circuit Voltage (Voc)	43.30 V	46.36 V	46.84 V	46.94 V	47.14 V
Short Circuit Current (Isc)	8.82 A	9.11 A	9.01 A	9.28 A	9.5 A
Temperature Coefficients of Pmax	-0,45% / °C				
Temperature Coefficients of Voc	-0,35% / °C				
Temperature Coefficients of Isc	-0,04% / °C				
Power Tolerance	+/-3%				

Solar Pump References

Our installed pumps and solar panels



Project Name	Location	Product Description	Quantity (pcs)
CSR Bukit Asam – Pekerjaan Irigasi Tenaga Surya Tanjung Raja	Desa Tanung Raja, Muara Enim, Sumatera Selatan	SWP80/52-110-C-3 + Solar Pumping System Solar Panel 275W, 30V, Poly	1 60
CSR Bukit Asam – Solar Pump Pesawaran	Desa Trimulyo, Kab. Pesawaran, Lampung	FA 10.76G + T 24-4/29K + Solar Pumping System Solar Panel 275W, 30V, Poly	1 140
Pompa Tenaga Surya Air Baku Gedung Meneng UNILA	Universitas Lampung, Bandar Lampung	TWI6.18-10-C + Solar Pumping System Solar Panel 270W, Poly	2 54
Solar Pump BWS Jambi 2019	Kab. Batanghari	OPTI MSI4.08-05 + Solar Pumping System Solar Panel 300W, Mono	5 40
	Kab. Merangin	OPTI MSI4.08-05 + Solar Pumping System Solar Panel 300W, Mono	3 30
	Kab. Merangin	OPTI MSI4.05-08 + Solar Pumping System Solar Panel 300W, Mono	2 24
	Kab. Merangin	OPTI MSI4.08-05 + Solar Pumping System Solar Panel 300W, Mono	6 72
	Kab. Tanjung Jabung Barat	OPTI MSI4.08-05 + Solar Pumping System Solar Panel 300W, Mono	8 64
Solar Pump Workshop BBWS Mesuji Sekampung	Kab. Tanjung Jabung Timur	OPTI MSI4.08-05 + Solar Pumping System Solar Panel 300W, Mono	8 64
	Desa Candimas, Kecamatan Natar, Lampung Selatan	Opti-MSI4.05-08 + Solar Pumping System Solar Panel 275W, Poly	1 10
Pembangunan Irigasi Desa Talawi 2019	Desa Talawi Mudik, Kec. Talawi, Kab. Sawahlunto, Sumatera Barat	TWI6.50-7-B 3 + Solar Pumping System Solar Panel 275W, Poly	1 60
Pengadaan Pompa Irigasi Padang Pariaman	Padang Pariaman, Sumatera Barat	Opti-MSI4.08.05 + Solar Pumping System Solar Panel 275W, Poly	8 16
		Opti-MSI4.08.03 + Solar Pumping System Solar Panel 275W, Poly	1 8

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