



## **SOLAR PUMP CATALOG**

Hard working Solar Pumps  
for hard working Americans





**WORKHORSE is a 100% American company  
working with USA installers**

We give you our promise that we will stand behind our products and support you in your efforts. When you go out in the field to install or service a WORKHORSE system, know that we are here to help along the way.





**WORKHORSE was started with a vision that a more reliable solar-powered well pump was possible at a fraction of the cost.**

Since our early years of design and testing, WORKHORSE has earned a loyal following among professional pump installers. As we forge ahead, we will continue to introduce new and innovative products to prove that top-quality solar pump systems can also be cost-effective.

The WORKHORSE team believes that anything worth doing is worth doing right. Our lead design engineer, once a NASA subcontractor, merges reliable pump technology with aerospace innovations to create user-friendly systems. Grateful for the backing of our investors and customers, we are determined to make a difference for every herd, farm, and family we serve.

*The Workhorse Team*



# Why More Groundwater Professionals Are Choosing WORKHORSE

Industry-Leading Pricing &  
Warranties



Field Repairable Parts Here In  
The USA



Meets All Requirements For  
NRCS Funding







## **Join The WORKHORSE Certified Installer Network**

The WORKHORSE Certified Installer Network is an exclusive group of well professionals across North America specializing in solar pump installations for livestock, off-grid living, irrigation, and industrial applications.

WORKHORSE is an American company focused on providing rugged solar pump technology to rural America. Our Certified Installers are the hardworking people from your local community who live and breathe water pumps.



## NARROW



## DIRECT DRIVE



## SOLAR+AC



## SOLAR FUSION



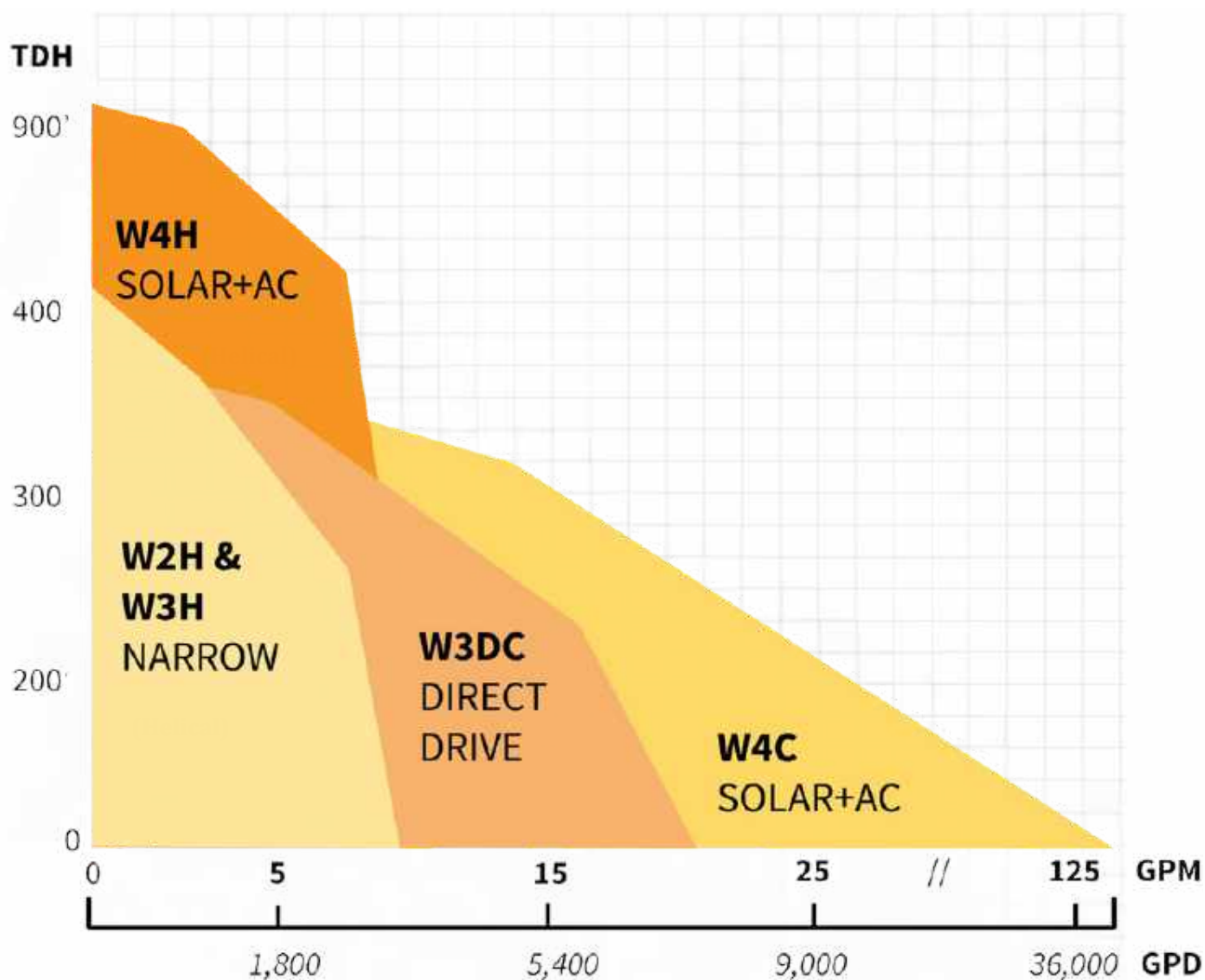
# Model Selection

Every WORKHORSE Solar Pump system is designed for reliable output year-round. We offer a wide range of solar pumping solutions designed for lifelong use in mind. All systems are scalable and can adapt to future water needs.

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# Solar Pump Overview



## NARROW

### Well Pumps

W2H-5-200  
W3H-6-500  
W3C-25-200

## DIRECT DRIVE

### Well Pumps

W3DC03 (0.3HP)  
W3DC05 (0.5HP)  
W3DC07 (0.75HP)  
W3DC10 (1.0HP)  
W3DC15 (1.5HP)

## SOLAR +AC

### Well Pumps

W4C-26-600  
W4C-65-280  
W6C-125-80  
W4H-12-450  
W4H-6-650  
W4H-3-950

Pump Type  
W = Well Pump

Pump  
Diameter  
Will fit this  
size casing  
(inches)

Pump End Type  
H = Helical Rotor  
C = Centrifugal

Max GPM  
GPM at optimal  
power and low head

Max Head  
Feet of Head  
(TDH) at optimal  
power

**W 4 C - 26 - 600**





**Narrow Series  
W2H/W3H/W3C**



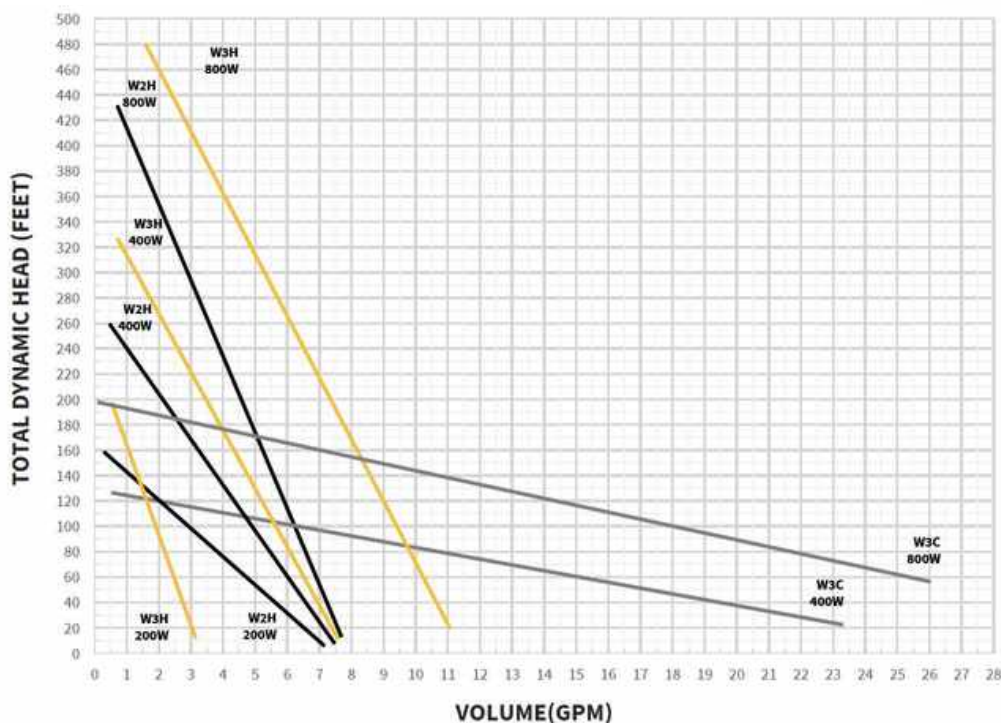
# Narrow Series: W2H/W3H/W3C

## 2 Inch & 3 Inch Pumps with External Controllers

No need to compromise with a helical or centrifugal pump from our Narrow Series. You will pump water all year long with solar, but if the need arises, adjust the output and utilize battery or AC backup power with an accessory - see page 43 for more details. You get the same great WORKHORSE expandable solar array ability with higher flow and higher head just by adding more panels.

### Narrow Series Features:

- Permanent magnet, brushless DC motor
- 304 Stainless Steel construction
- Laser-welded motor housing
- Water-lubricated thrust bearings
- Encapsulated, water-filled motor
- Soft start and soft stop to extend life
- Field repairable helical mechanisms
- PSC100 variable-speed controller
- Solar or battery input
- Variable current & over-voltage protection
- Run-dry protection using included sensors
- Compatible with pressure systems
- Meets NRCS requirements
- Comprehensive 3-year warranty

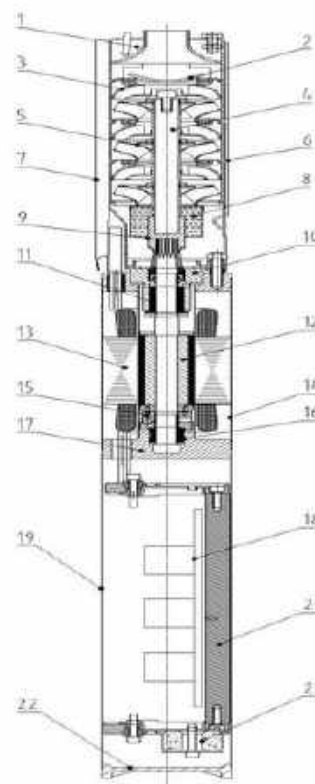


*Pump curves of the Narrow Series at different power*



# Narrow Series Specifications

<b>Power Input</b>	DC Only DC 24 – 72VDC Max Voc 90V Current Range: 1.5 – 11A
<b>Input Range</b>	170w – 1200w
<b>Run Time</b>	Unlimited, Continuous Duty Solar: 5-10 hours/day area dependent
<b>Start/Stop</b>	No Limit (soft start built in)
<b>Angles of Operation</b>	Vertical (upright) or Horizontal (90 deg)
<b>Liquid Characteristics</b>	pH 5 to 9, Maximum temperature 100F Sand Content: <1g/m3 for helical, <50g/m3 for centrifugal
<b>Certifications</b>	CE, TUV
<b>Speed Range</b>	500 – 4500RPM
<b>Diameters</b>	2", 3"
<b>Protection Class</b>	IP 68
<b>Max Submersion Depth</b>	W2H 130ft W3H/C 450ft
<b>Pump Wire</b>	Min 12 gauge. 10 gauge for longer runs. 4-strand submersible cable for W3 3-strand submersible cable for W2



- 1 Discharge chamber *Stainless steel*
- 2 Non-return valve *Stainless steel*
- 3 Guide vanes *PC/Stainless steel*
- 4 Pump Shaft *Stainless steel*
- 5 Impeller *POM/Stainless steel*
- 6 Impeller Fastener *Stainless steel*
- 7 Cable Cover *Stainless steel*
- 8 Pump Inlet *Stainless steel*
- 9 Shaft coupling *Stainless steel*
- 10 Upper Bearing Housing *Stainless*
- 11 Upper Bearing *Silicon Carbide*
- 12 Permanent Magnet Rotor
- 13 Motor Stator
- 14 Pump Housing *Stainless steel*
- 15 Thrust bearing *Graphite*
- 16 Lower Bearing *Silicon Carbide*
- 17 Lower Bearing Housing *Stainless*
- 18 Controller Housing *Stainless steel*
- 19 Controller Housing *Stainless steel*
- 20 Heatsink *Aluminum*
- 21 Inductor
- 22 Base *Stainless steel*



**200 Watts**  
**2P - 2 Panel**  
2" Steel Post



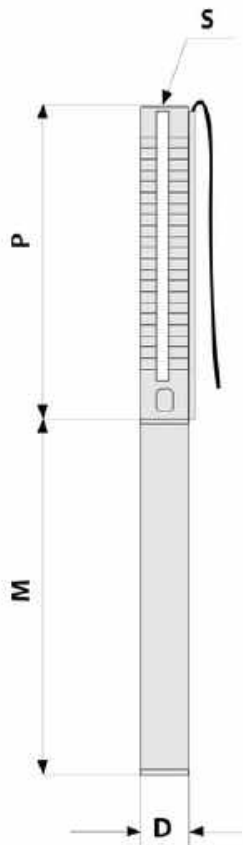
**400 Watts**  
**4P - 4 Panel**  
4" Steel Post



**800 Watts**  
**8P - 8 Panel**  
4" Steel Post



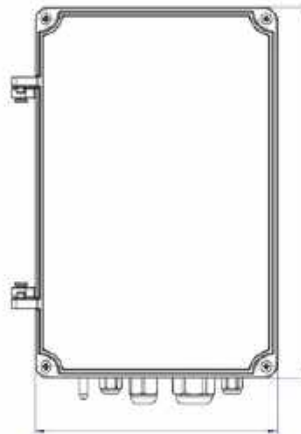
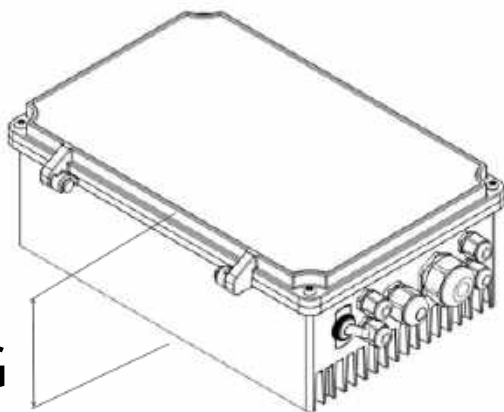
# Narrow Series Dimensions



	W3C	W3H	W2H
S	1.25" FNPT	1" FNPT	1/2" FNPT
P	12.25"	9"	9"
M	8"	8"	14"
T	20.25"	17"	23"
D	3.25"	3.01"	2.01"

PSC100

G

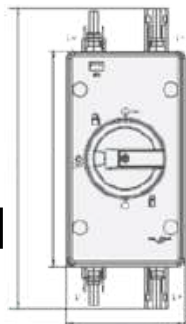
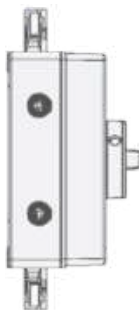


W

H

DC101

H



W

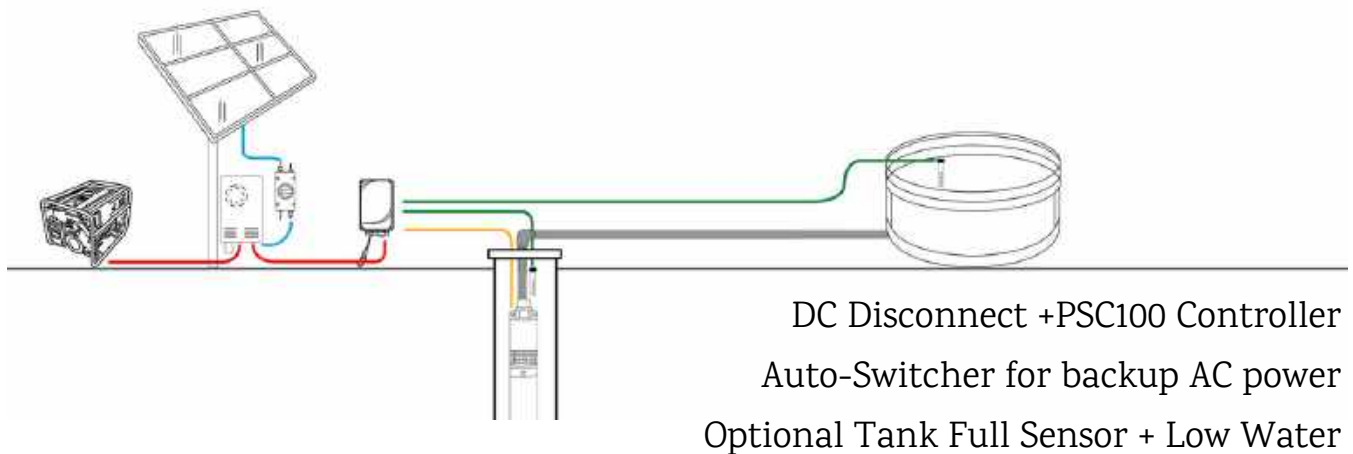
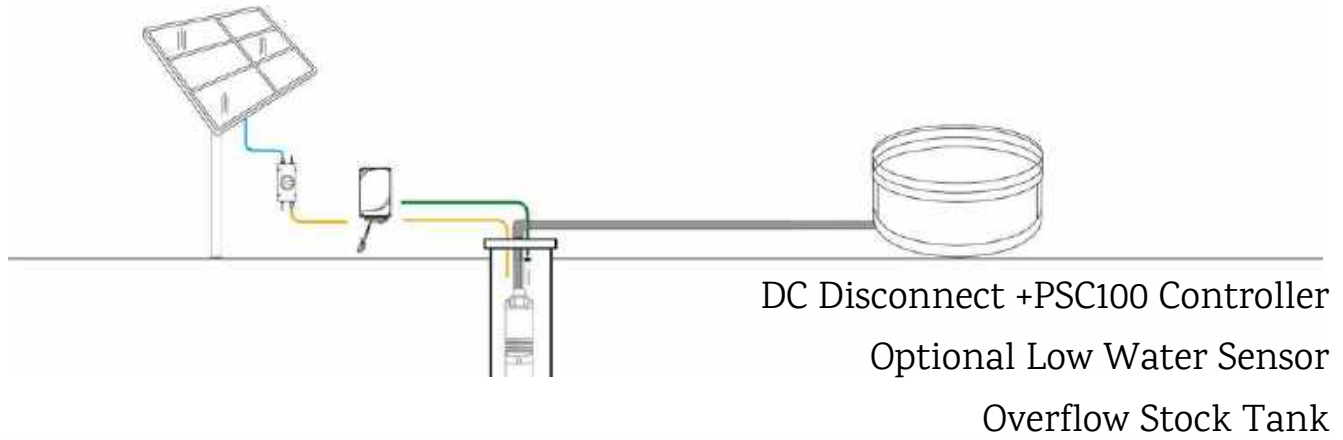


G

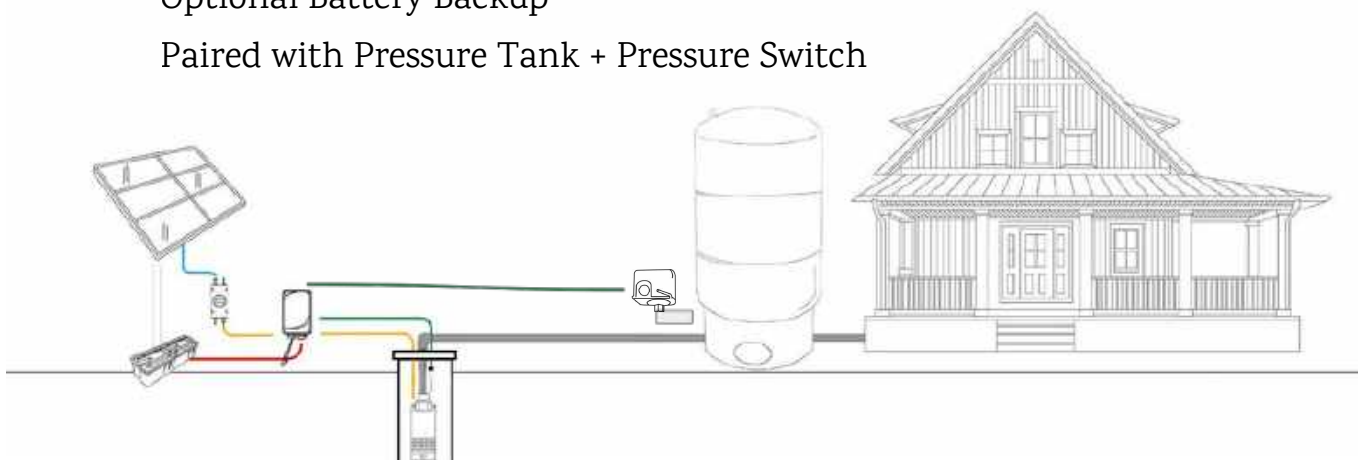
	DC101 Switch	PSC100 Controller
H	7" / 10"	10.5"
W	3.75"	7"
G	4.5"	4"



## Narrow Series Diagrams



DC Disconnect +PSC100 Controller  
Optional Battery Backup  
Paired with Pressure Tank + Pressure Switch

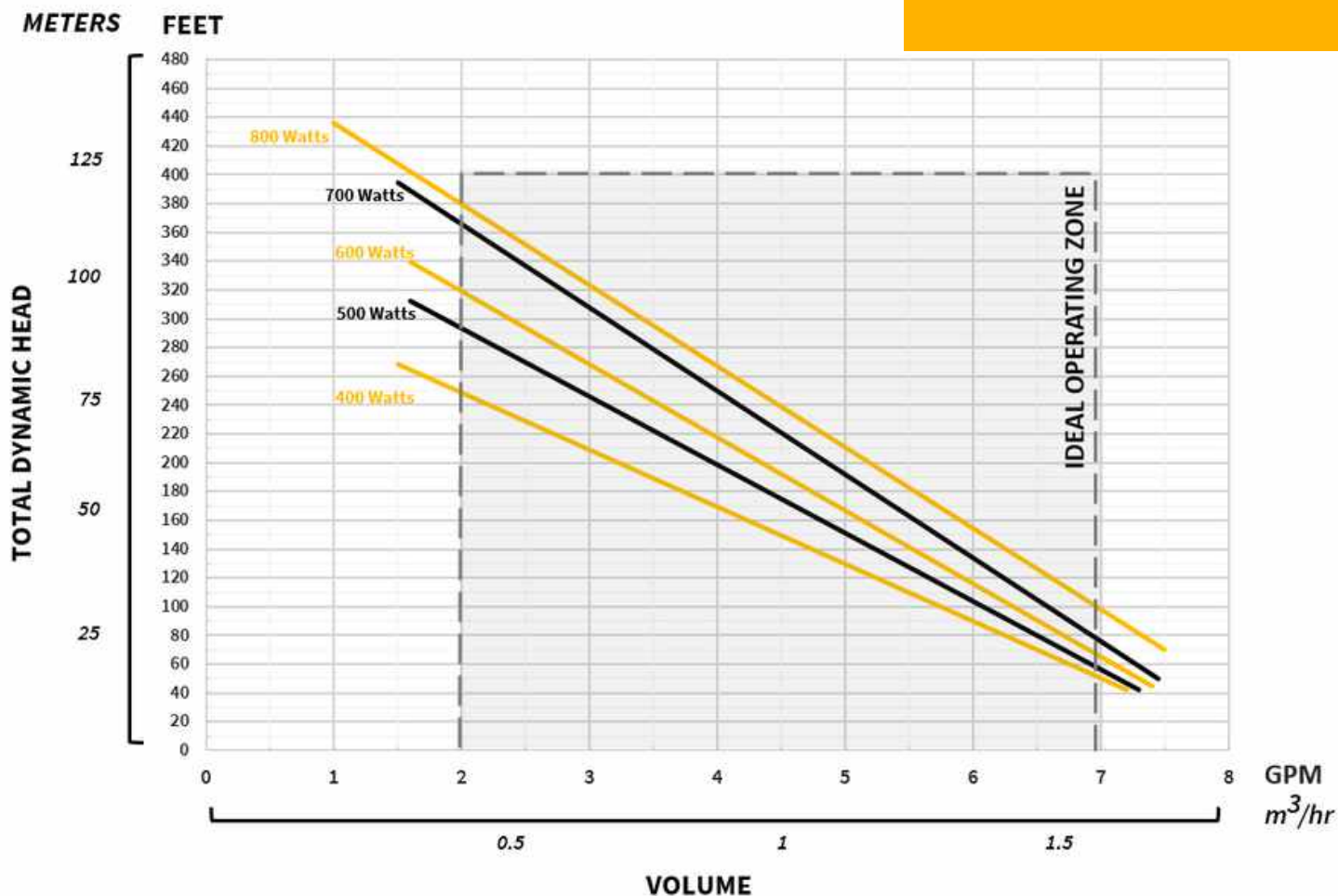




# W2H-5-200

## 2 Inch Helical Pump

### Narrow Series



*W2H-5-200 is a 2.01" OD helical pump made for extra tight casings or to sit alongside other pumps or windmill sucker rods.*

**PSC100 Controller**  
(required and included)

**Input Voltage:**

DC 54 - 72 Vmp (prefers higher end of this range)  
Max Voc 90V  
Compatible with: 48V Battery Bank

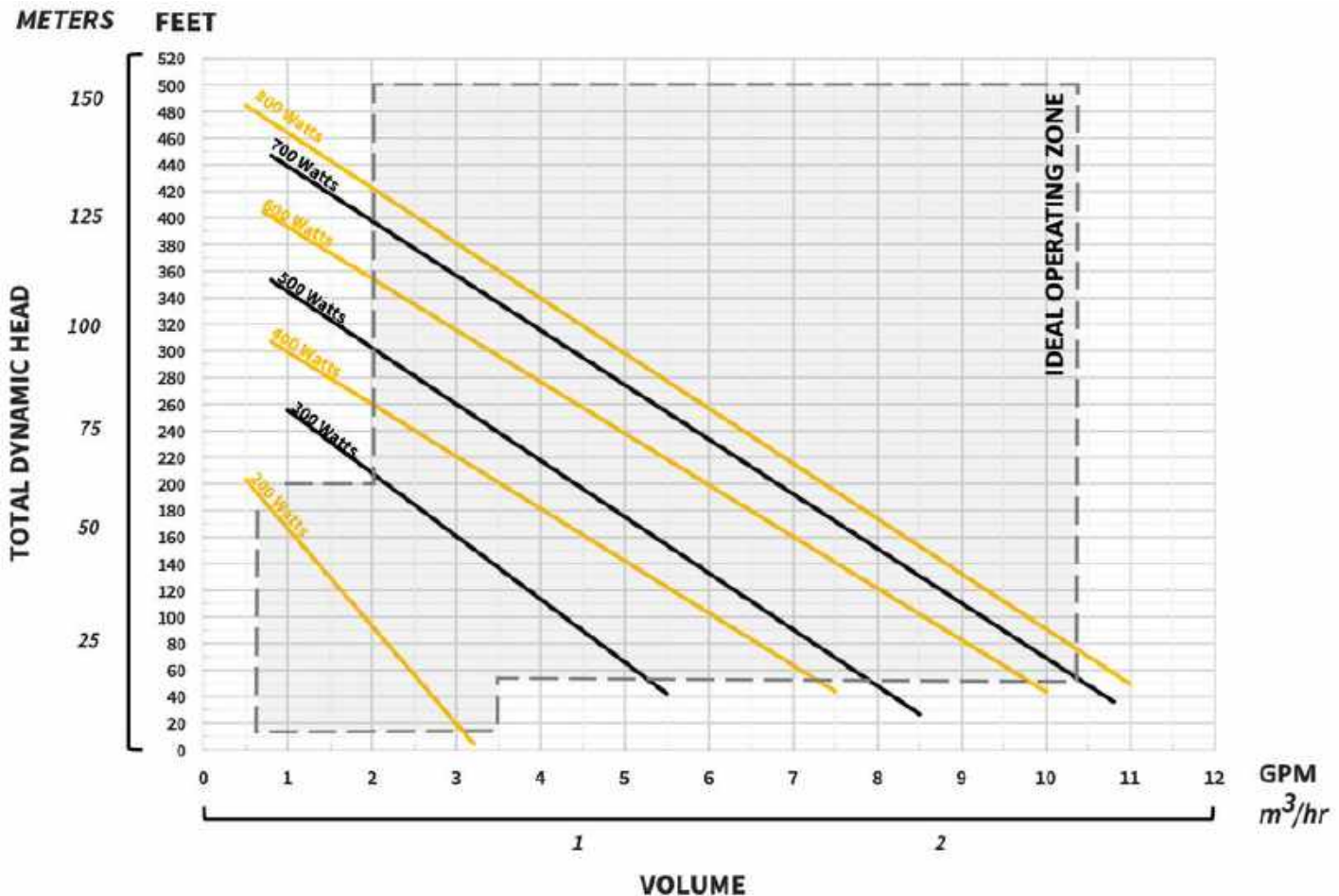
**Input Wattage:**

Standard 400 - 800w, Max 1200w  
Adding wattage past 800w generally increases daily pumping time, not GPM volume

# W3H-6-500

3 Inch Helical Pump

Narrow Series



*W3H-6-500 is a 3.01" OD submersible pump using a field-replaceable helical rotor pumping mechanism and brushless motor.*

## PSC100 Controller

(required and included)

## Input Voltage:

DC 36 – 72 Vmp, Max Voc 90V

200w pump curve above is measured at 36v Vmp (24v) Unless 24v Solar array, 48V Battery Bank Recommended

## Input Wattage:

Standard 200 – 800w, Max 1200w

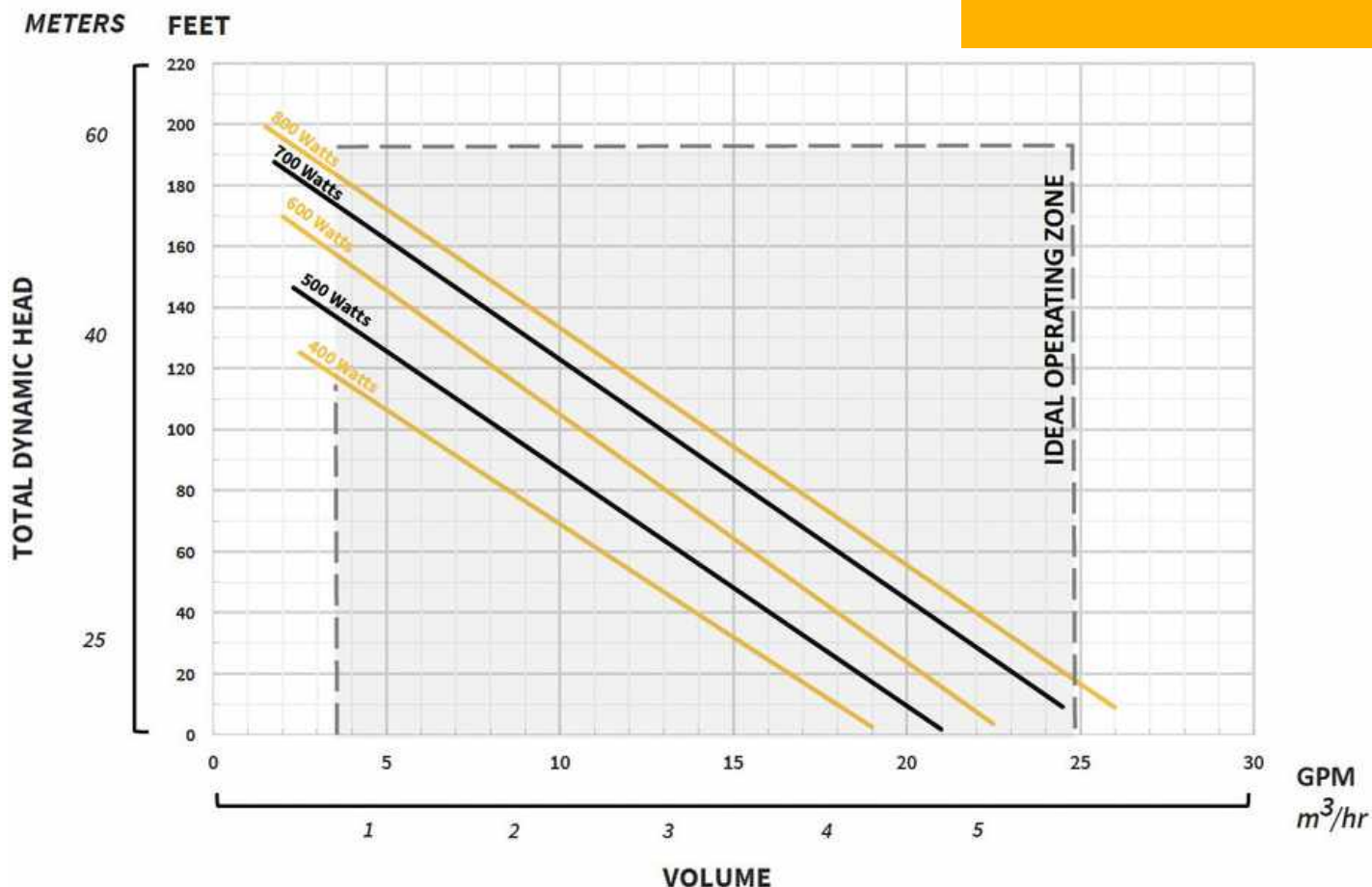
Adding wattage past 800w generally increases daily pumping time, not GPM volume



# W3C-25-200

3.25 Inch Centrifugal Pump

Narrow Series



*W3C-25-200 is a high-volume, mid-head centrifugal pump with the ability to accept power from a 48V battery bank or 110V AC backup using a converter.*

## PSC100 Controller

(required and included)

## Input Voltage:

DC 54 - 72 Vmp (prefers higher end of this range) Max Voc 90V

Note on batteries: GPM and Head on Centrifugal Pumps decrease by 50% on batteries, but are compatible with 48V Battery Bank if required

## Input Wattage:

Standard 400 - 800w, Max 1200w

Adding wattage past 800w generally increases daily pumping time, not GPM volume

# Flex Power PSC100 Controller



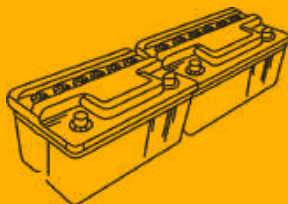
## MPPT BOOST

Included in every WORKHORSE PSC100. Boosts energy from solar panels for optimum pump performance under any weather conditions



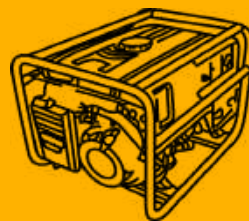
## Speed +Timer Dials

Speed dial adjusts maximum motor speed. Timer dial adjusts low water shut off delay. Great for low-producing wells.



## Battery Backup

Option to run pump off a 24V or 48V battery bank. PSC100 ensures batteries do not overcharge or over- discharge.



## AC Power Backup

Option to run the pump off 110V AC power, whether from grid or generator.

**\* Requires Auto-Switcher or Converter, see page 43.**



## Tank Full Sensor

### Optional AND Included

The tank full sensor is fastened at the top of the tank and shuts off the pump once the tank is full.



## Low Water Sensor

### Included AND Encouraged

This sensor is placed a few feet above the pump in the well. The sensor shut off pump if water level in well becomes too low and prevents run dry.



The background image shows a solar pump system in a rural, arid environment. A white pickup truck is parked on the left. In the foreground, there is a large, circular concrete well with a metal frame. To the right, a solar panel array is mounted on a metal structure. The ground is dry and sandy, with some green trees in the background.

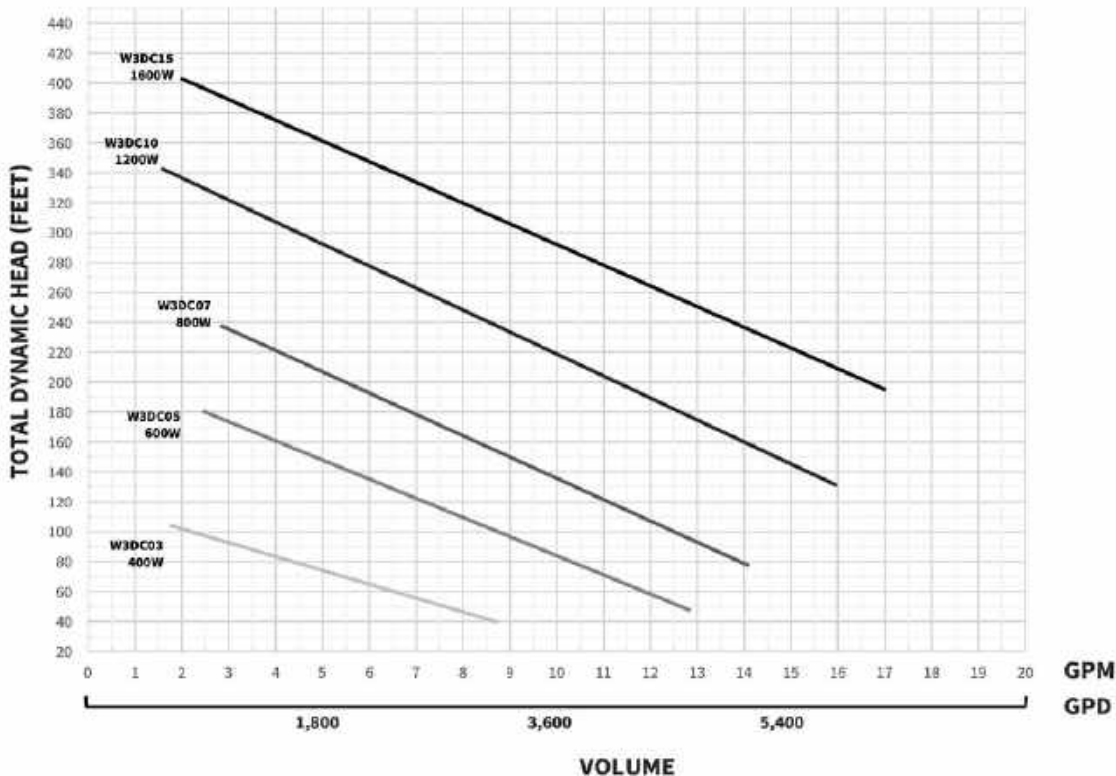
## Direct Drive Series W3DC



# Direct Drive Series: W3DC

## 3.25" Inch Centrifugal Solar Pump

Offering even further simplicity for installation, our Direct Drive Series only requires solar panels, a pump, and a DC disconnect switch for operation. Ideally suited for stock water applications and filling storage tanks, these systems will get up and pumping quickly without breaking the bank.



## Direct Drive Series Features:

- Centrifugal pump ends for better sand, grit, and iron performance
- Permanent magnet, brushless DC motors with internal controller and Run-Dry protection
- Laser-welded 304 stainless housing
- Water-lubricated thrust bearings
- Variable current & over-voltage protection
- Water-filled encapsulated motor
- Soft start and soft stop to extend life
- Compatible with High-Voltage DC Float (see page 42)
- Meets NRCS requirements
- Comprehensive 3-year warranty

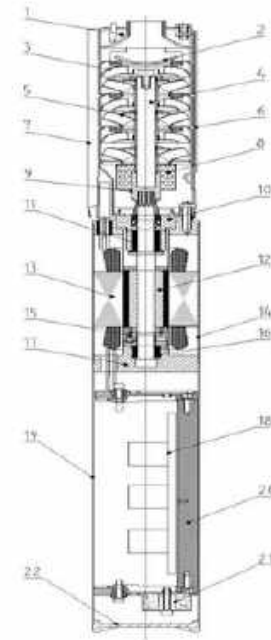




# Direct Drive Series Specifications



<b>Power Input</b>	DC Only Varies on Model - See pump specs Current Range: 1.5 – 11A
<b>Input Range</b>	Varies on Model - See pump specs
<b>Run Time</b>	Unlimited, Continuous Duty Solar: 5-10 hours/day area dependent
<b>Start/Stop</b>	No Limit (soft start built in)
<b>Angles of Operation</b>	Vertical (upright) or Horizontal (90 deg)
<b>Liquid Characteristics</b>	pH 5 to 9, Maximum temperature 100F Sand Content: <50g/m3
<b>Certifications</b>	CE, TUV
<b>Speed Range</b>	500 – 4500RPM
<b>Diameters</b>	3.25"
<b>Protection Class</b>	IP 68
<b>Max Submersion Depth</b>	450ft (Additional check valve required over 250ft of head)
<b>Pump Wire</b>	Min 12 gauge, 10 gauge for runs >200' 3-strand submersible cable



- 1 Discharge chamber *Stainless steel*
- 2 Non-return valve *Stainless steel*
- 3 Guide vanes *PC /Stainless steel*
- 4 Pump shaft *Stainless steel*
- 5 Impeller *POM /Stainless steel*
- 6 Impeller fastener *Stainless steel*
- 7 Cable cover *Stainless steel*
- 8 Pump inlet *Stainless steel*
- 9 Shaft coupling *Stainless steel*
- 10 Upper bearing Housing *Stainless steel*
- 11 Upper-bearing *Silicon carbide*
- 12 Permanent magnet rotor
- 13 Motor stator
- 14 Pump housing *Stainless steel*
- 15 Thrust bearing *Graphite*
- 16 Lower bearing *Silicon Carbide*
- 17 Lower bearing Housing *Stainless*
- 18 Controller housing *Stainless steel*
- 19 Controller housing *Stainless steel*
- 20 Heatsink *Aluminum*
- 21 Inductor
- 22 Base *Stainless steel*

**W 3 DC 05**

**Pump Type**

W = Well Pump

**Pump Motor Style**

3DC = 3.25" Direct

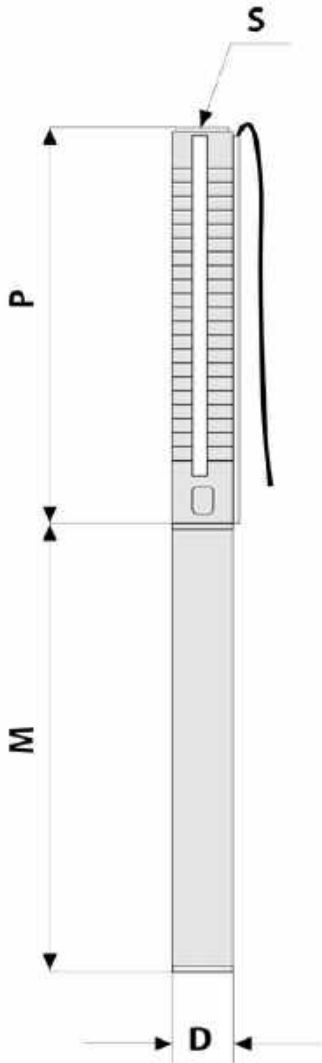
Drive DC

**Horsepower**

05 = ½ HP

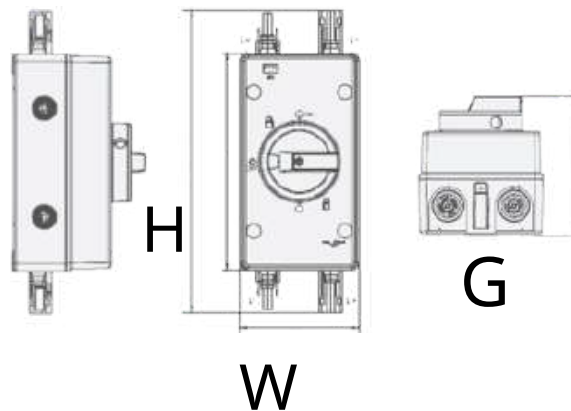


# Direct Drive Series Dimensions



	W3DC03	W3DC05	W3DC07	W3DC10	W3DC15
S	1.25" FNPT	1.25" FNPT	1.25" FNPT	1.25" FNPT	1.50" FNPT
P	11.8"	14.3"	17.0"	20.5"	25.6"
M	10.3"	10.3"	11.1"	11.1"	15.6"
T	22.1"	24.6"	28.1"	31.6"	41.2"
D	3.25"	3.25"	3.25"	3.25"	3.25"

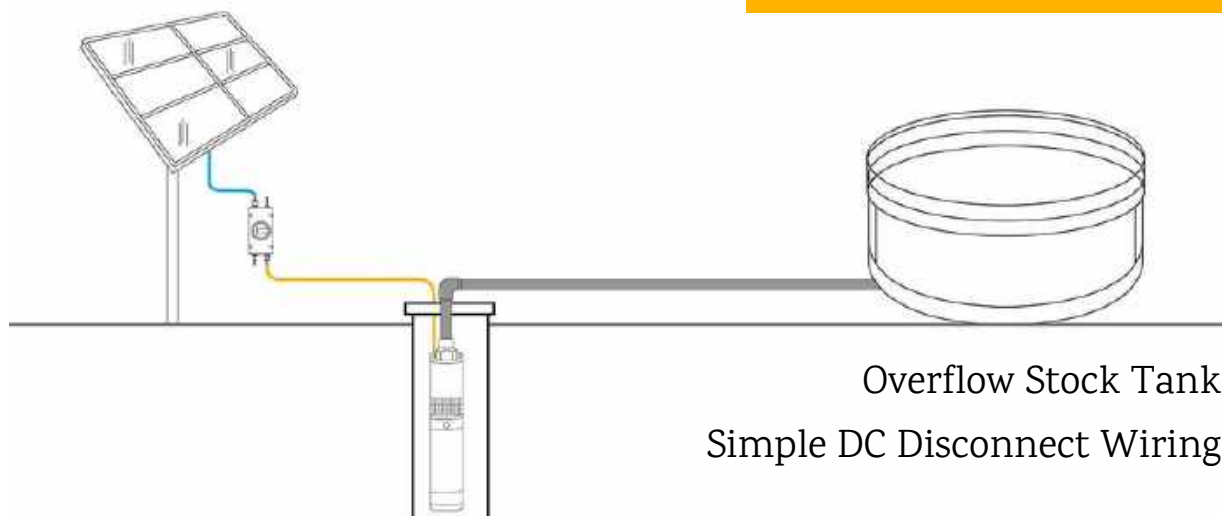
DC101



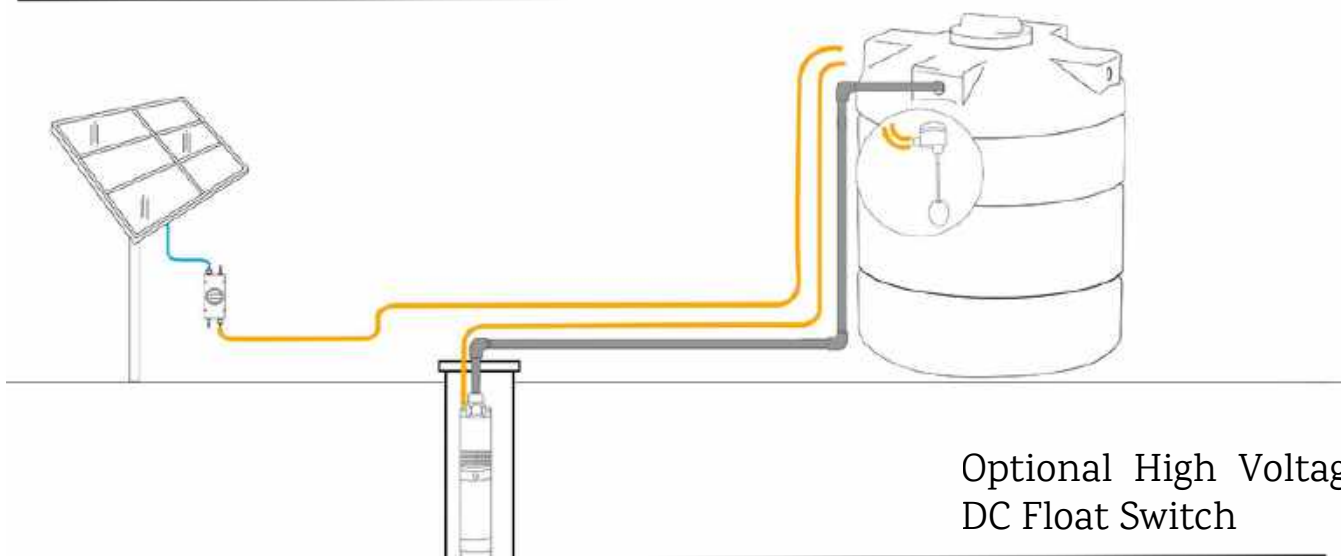
	DC101 Switch
H	7" / 10"
W	3.75"
G	4.5"



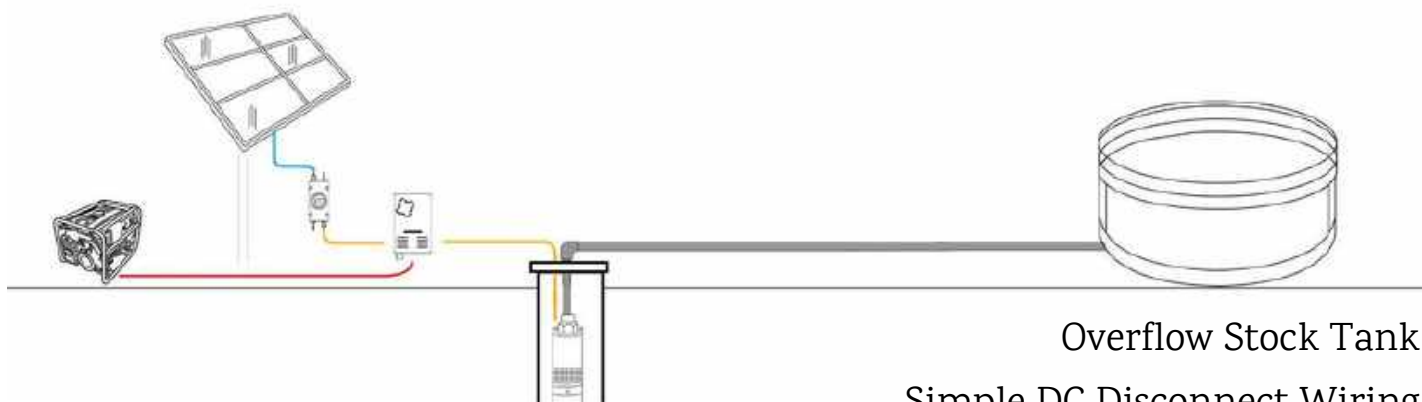
## Direct Drive Diagrams



Overflow Stock Tank  
Simple DC Disconnect Wiring



Optional High Voltage  
DC Float Switch

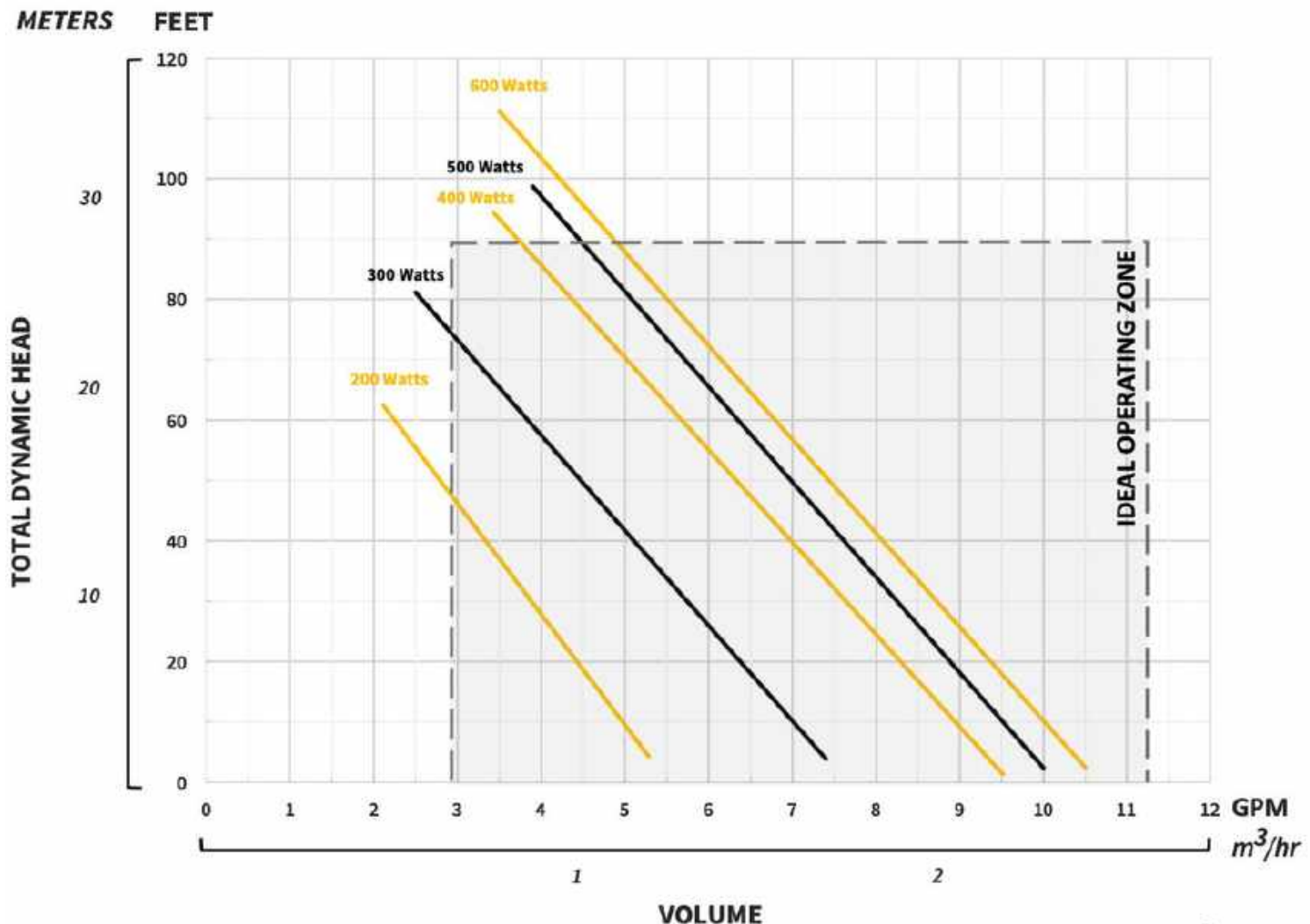


Overflow Stock Tank  
Simple DC Disconnect Wiring  
Auto-Switcher for backup AC power

# W3DC03

1/3 HP Centrifugal Solar Pump

Direct Drive



## Input Voltage:

20-40V (prefers higher end of this range)  
Max Voc 48v  
Compatible with: 110VAC to 36V DC auto switcher

## Input Wattage:

Standard 200 - 400w, Max 600w  
Adding wattage past 600w generally increases daily pumping time, not GPM volume

## Pump Control:

No surface controller  
(Use high voltage DC float for tank full shutoff)

## Diameter / Length

3.25" / 22.1"

## Pump Outlet

1-¼" FNPT

## Weight

12.9 lbs

## Box Dimensions

26"x4"x4"



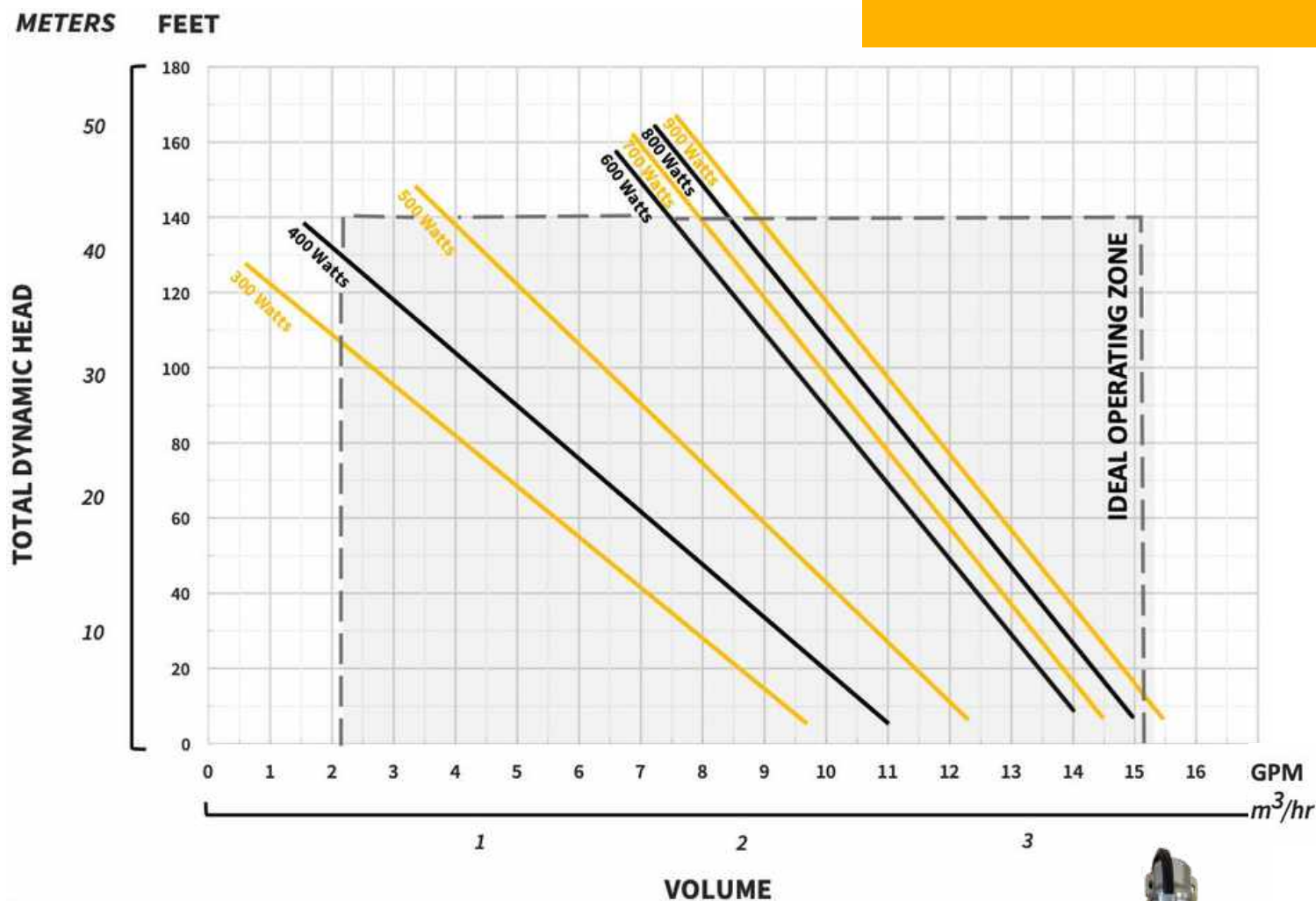


# W3DC05

1/2 HP Centrifugal Solar Pump



Direct Drive



## Input Voltage:

40-76V (prefers higher end of this range)

Max Voc 96v

Compatible with: 110VAC to 72V DC auto switcher

## Input Wattage:

Standard 400 - 600w, Max 900w

Adding wattage past 900w generally increases daily pumping time, not GPM volume

## Pump Control:

Optional PSC150 Controller or High Voltage DC Float

## Diameter / Length

3.25" / 24.6"

## Pump Outlet

1-1/4" FNPT

## Weight

14.7 lbs

## Box Dimensions

31"x4"x4"

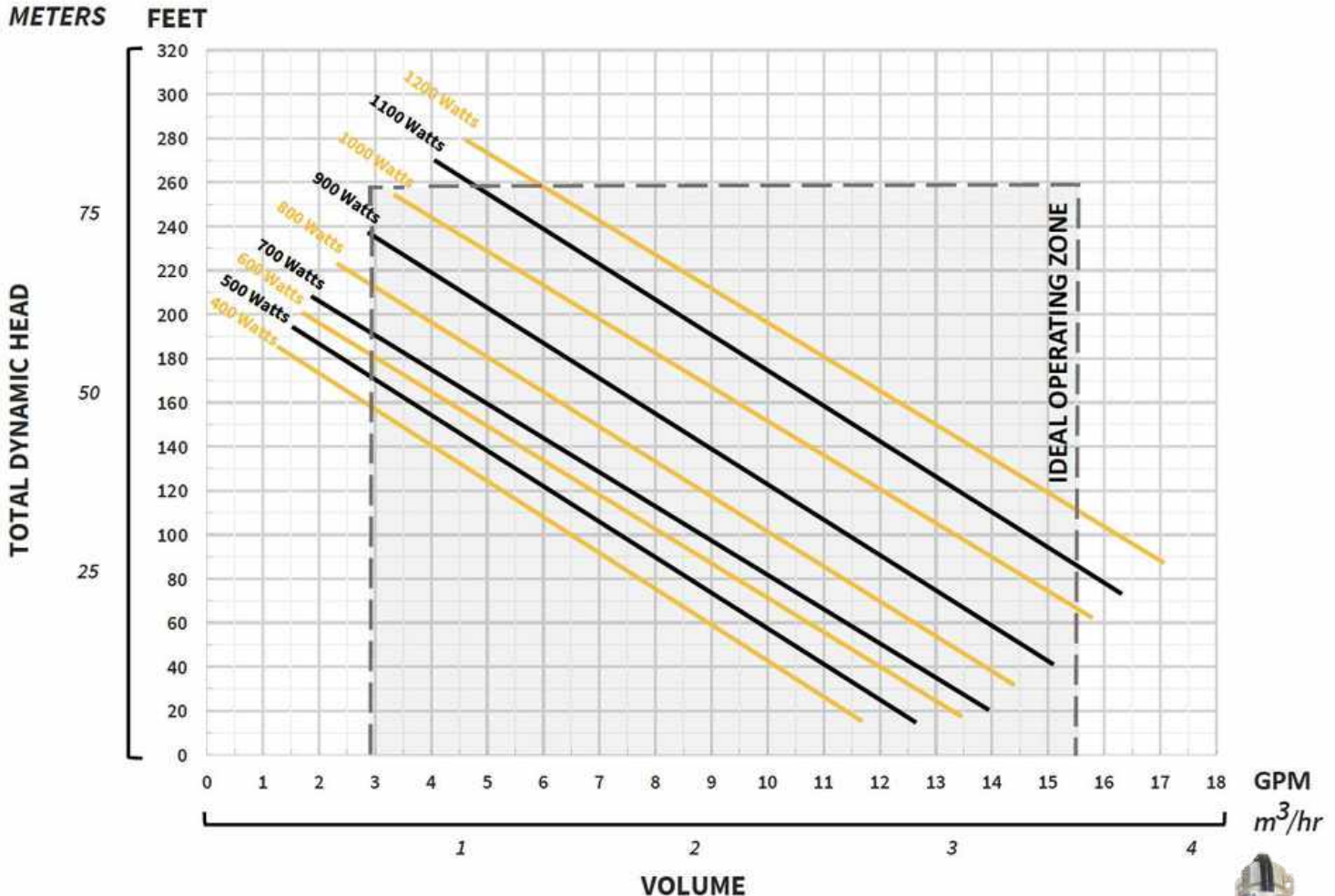




# W3DC07

3/4 HP Centrifugal Solar Pump

Direct Drive



## Input Voltage:

65-110V (prefers higher end of this range)  
Max Voc 150v  
Compatible with: 110VAC to 72V DC auto switcher

## Input Wattage:

Standard 400 - 1000w, Max 1200w  
Adding wattage past 1200w generally increases  
daily pumping time, not GPM volume

## Pump Control:

Optional PSC150 Controller or High Voltage DC Float

## Diameter / Length

3.25" / 28.1"

## Pump Outlet

1-¼" FNPT

## Weight

16.9 lbs

## Box Dimensions

35"x4"x4"



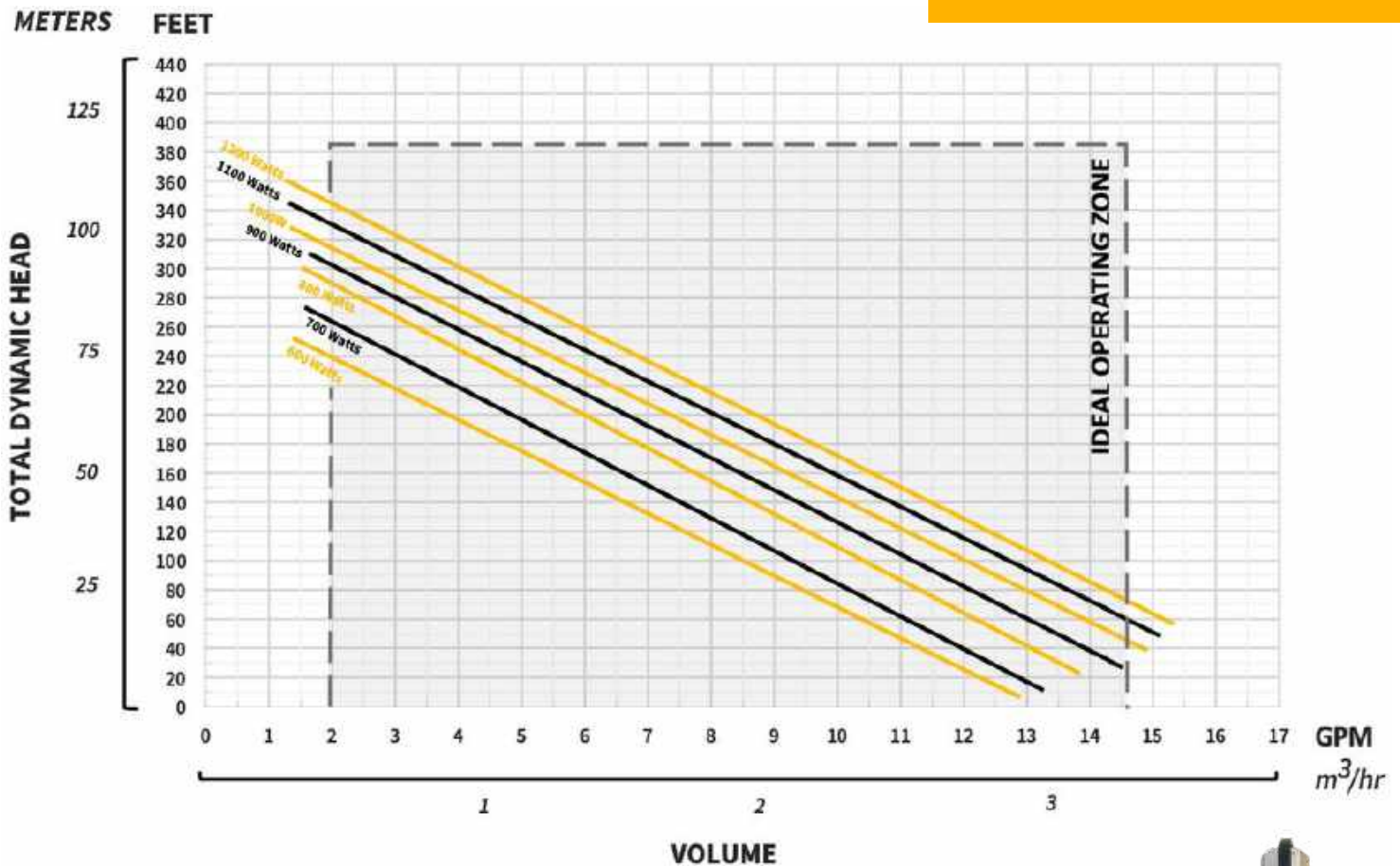


# W3DC10

1HP Centrifugal Solar Pump



Direct Drive



## Input Voltage:

80-150V

Max Voc 180v

## Input Wattage:

Standard 400 - 1000w, Max 1600w

Adding wattage past 1200w generally increases daily pumping time, not GPM volume

## Pump Control:

Optional PSC150 Controller or High Voltage DC Float

## Diameter / Length

3.25" / 31.6"

## Pump Outlet

1-¼" FNPT

## Weight

17.4 lbs

## Box Dimensions

38"x4"x4"

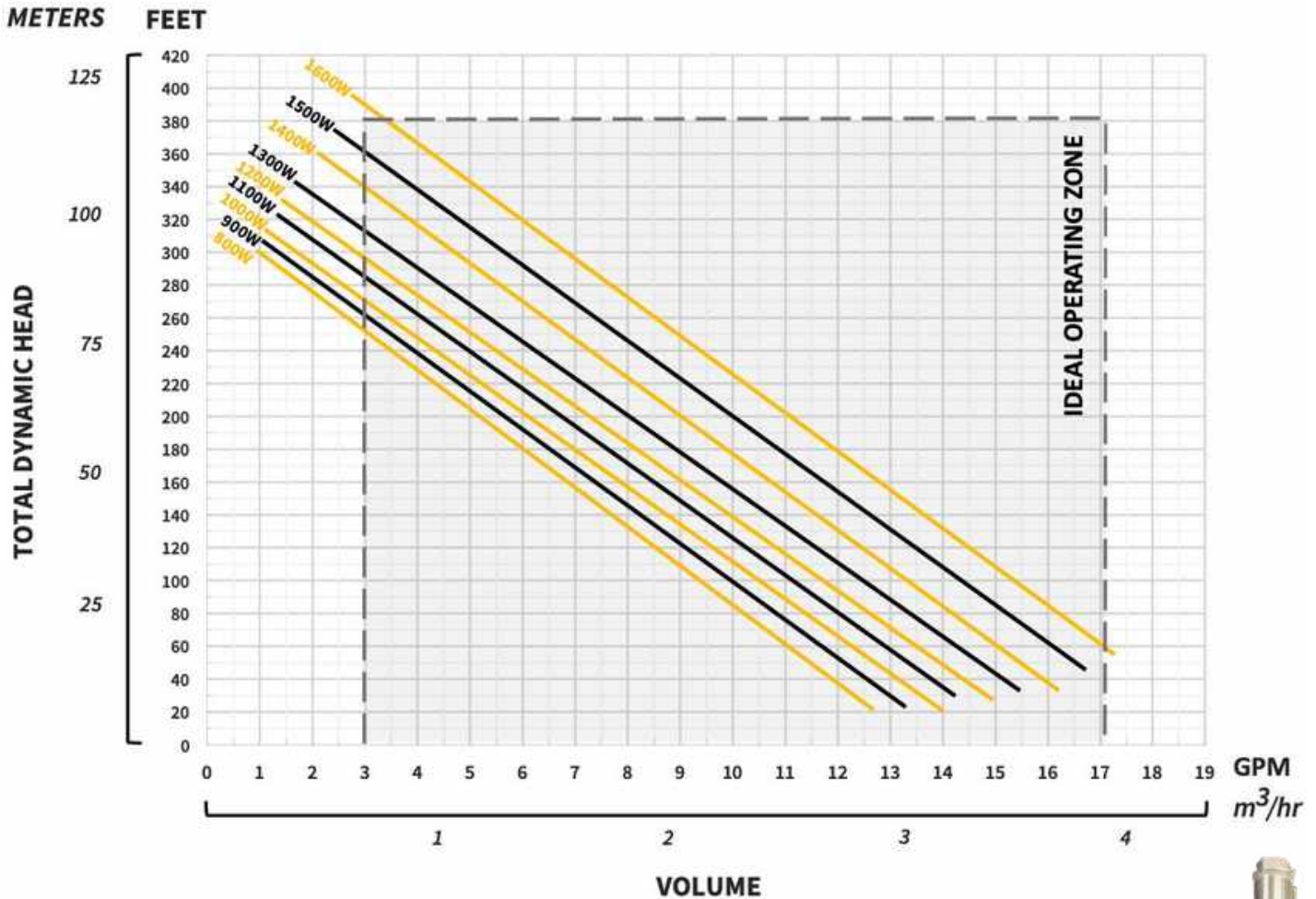




# W3DC15

1-1/2 HP Centrifugal Solar Pump

Direct Drive



## Input Voltage:

130-190V  
Max Voc 230v

## Input Wattage:

Standard 800 - 1600w, Max 2400w  
Adding wattage past 1600w generally increases daily pumping time, not GPM volume

## Pump Control:

Optional PSC150 Controller or High Voltage DC Float

## Diameter / Length

3.25" / 41.2"

## Pump Outlet

1-1/2" FNPT

## Weight

22.0 lbs

## Box Dimensions

47"x4"x4"





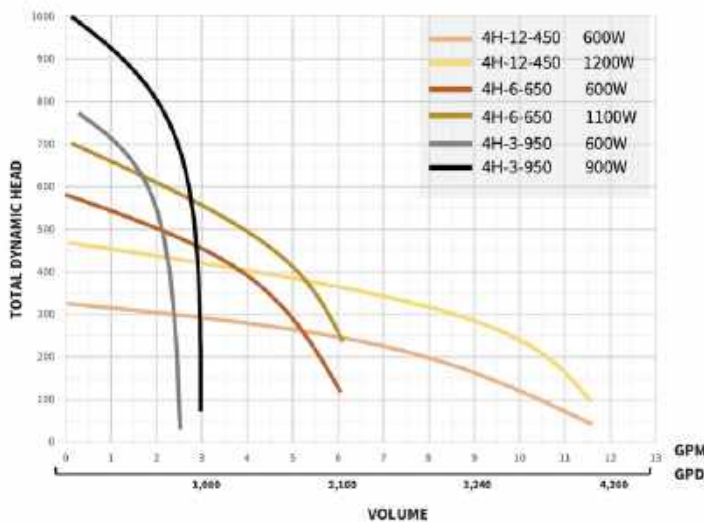


**Solar+AC Series  
W4H/W4C/W6C**

# Solar+AC Series:W4H/W4C/W6C

Solar, 110VAC, 220VAC 4 inch & 6 inch Solar Pumps

## WORKHORSE Deep Series

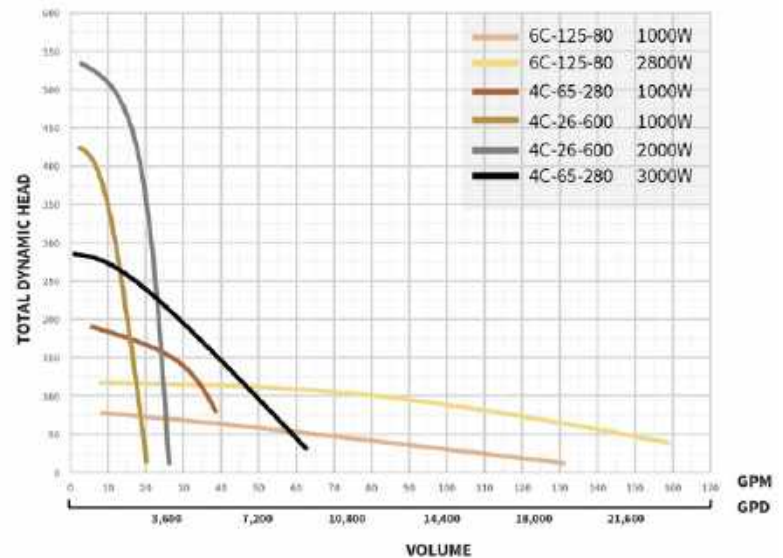


### Ideal Applications

Higher pumping head, lower volume particle-free deep well water pumping.

- High efficiency helical pump ends

## WORKHORSE Volume Series



### Ideal Applications

Higher volume, low to medium pumping heads. Domestic water supply, irrigation, pond filling.

- Rebuildable centrifugal pump ends

## Solar+AC Series Features:

- Internal controller capable of operating on Solar or AC power (110V or 220V)
- Extremely scalable with wide DC Input range - add more solar panels later if water needs increase
- Permanent magnet, brushless DC motors
- Laser-welded 304 stainless housing
- Water-lubricated thrust bearings
- Variable current & over-voltage protection
- Water-filled encapsulated motor
- Soft start and soft stop to extend life
- Built-in Run-Dry protection (W4C/W6C Models)
- Integrated well-low sensor (W4H Models)
- Compatible with PSC300 (AC/DC) controller (see page 37)
- Meets NRCS Requirements
- Comprehensive 3-Year Warranty

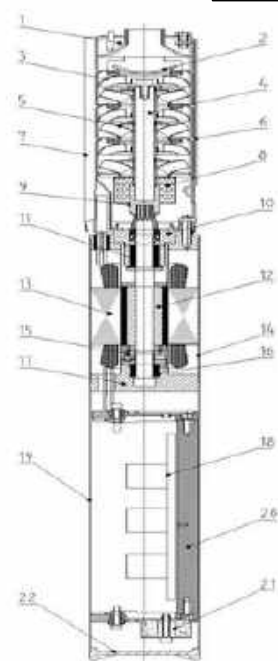




# Solar + AC Series Specifications



<b>Power Input</b>	<b>Solar:</b> 60 - 360VDC / Max Voc 440V <b>AC:</b> 120 - 240VAC 50/60Hz
<b>Run Time</b>	<b>Solar:</b> 5-10 hours/day area dependent <b>AC:</b> Unlimited, Continuous Duty
<b>Start/Stop</b>	No Limit (soft start built in)
<b>Angles of Operation</b>	Vertical (upright) or Horizontal (90 deg)
<b>Liquid Characteristics</b>	pH 5 to 9, Maximum temperature 100F Sand Content: <1g/m3 for helical, <50g/m3 for centrifugal
<b>Certifications</b>	CE, TUV
<b>Speed Range</b>	500 - 4500RPM
<b>Diameters</b>	4", 6"
<b>Protection Class</b>	IP 68
<b>Max Submersion Depth</b>	450ft
<b>Pump Wire</b>	Min 12 gauge. 8 - 10 gauge for longer runs 3-strand submersible cable



- 1 Discharge chamber *Stainless steel*
- 2 Non-return valve *Stainless steel*
- 3 Guide vanes *PC/Stainless steel*
- 4 Pump Shaft *Stainless steel*
- 5 Impeller *POM/Stainless steel*
- 6 Impeller Fastener *Stainless steel*
- 7 Cable Cover *Stainless steel*
- 8 Pump Inlet *Stainless steel*
- 9 Shaft coupling *Stainless steel*
- 10 Upper Bearing Housing *Stainless*
- 11 Upper Bearing *Silicon Carbide*
- 12 Permanent Magnet Rotor
- 13 Motor Stator
- 14 Pump Housing *Stainless steel*
- 15 Thrust bearing *Graphite*
- 16 Lower Bearing *Silicon Carbide*
- 17 Lower Bearing Housing *Stainless*
- 18 Controller Housing *Stainless steel*
- 19 Controller Housing *Stainless steel*
- 20 Heatsink *Aluminum*
- 21 Inductor
- 22 Base *Stainless steel*



**800 Watts**  
**8P - 8 Panel**  
4" Steel Post



**1600+ Watts**  
**2 or more**  
**8P Mounts**



**2200 Watts**  
**VC2-HR4 - (6) 370W Panels**  
Mounts to 2-3/8" OD Steel Post

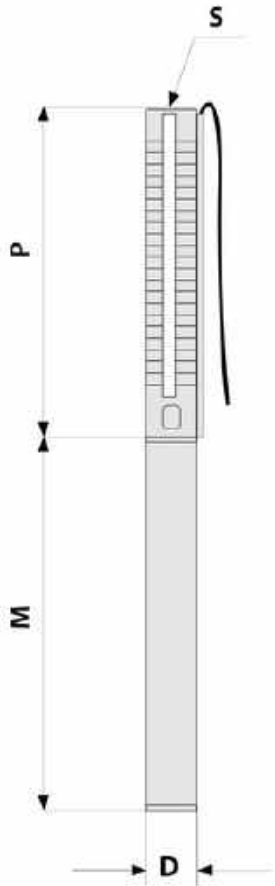


**3000 Watts**  
**VC2-HR4 - (8) 370W Panels**  
Mounts to 2-3/8" OD Steel Post



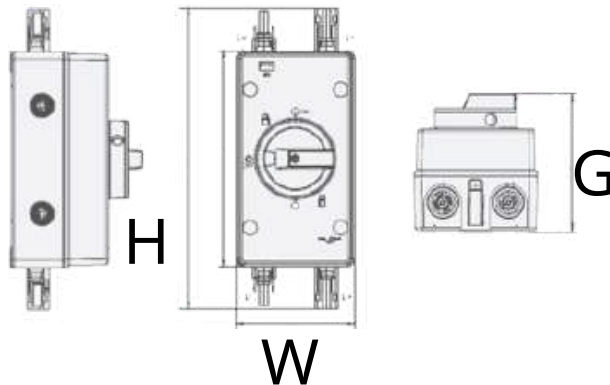
# Pump Dimensions

## Solar + AC Series



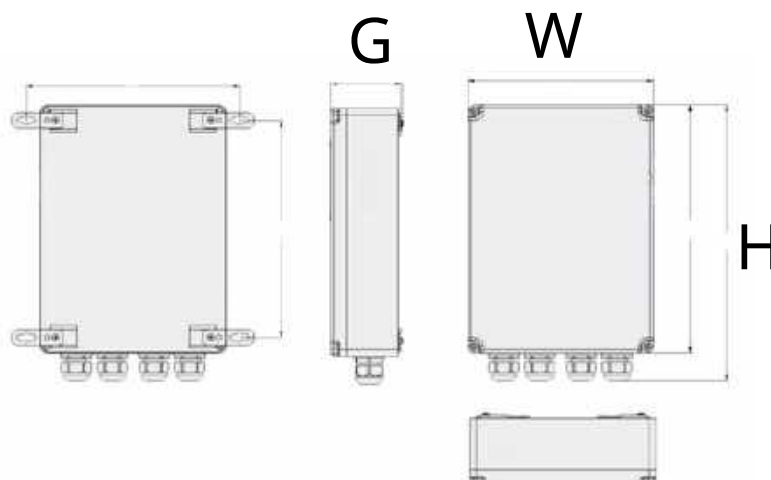
	W6C-125-80	W4C-65-280	W4C-26-600	W4H-3-950	W4H-6-650	W4H-12-450
S	3" FNPT	2" FNPT	1.25" FNPT	1" FNPT	1.25" FNPT	1.25" FNPT
D	5.50"	3.95"	3.95"	3.95"	3.95"	3.95"
P	13.65"	14.45"	21.00"	27.00"	28.10"	28.10"
M	24.25"	24.25"	24.25"	24.40"	24.40"	24.40"
T	37.90"	38.70"	45.25"	51.40"	52.50"	52.50"
W	38 lbs	35 lbs	39 lbs	35 lbs	36 lbs	36 lbs

DC101



	DC101 Switch
H	7" / 10"
W	3.75"
G	4.50"

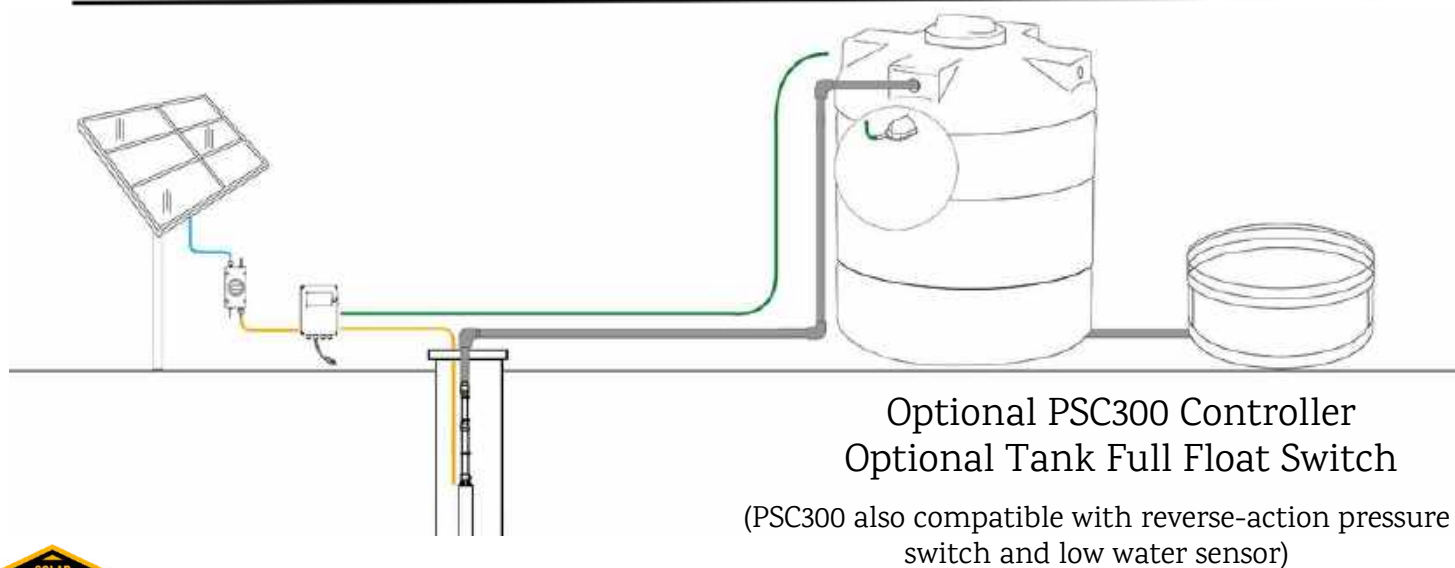
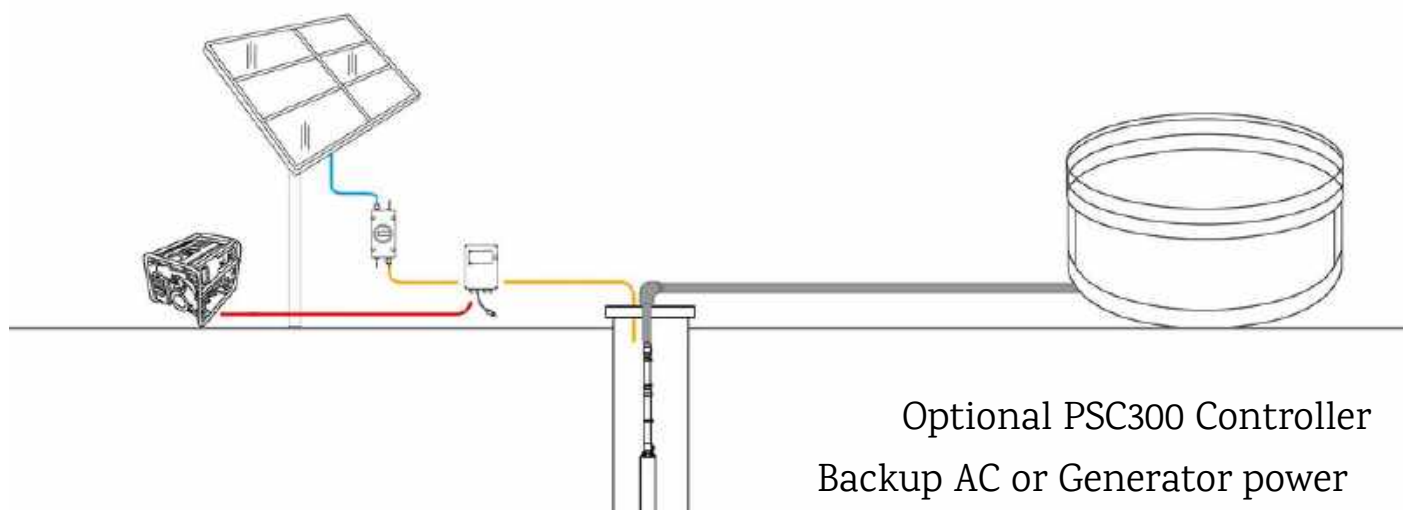
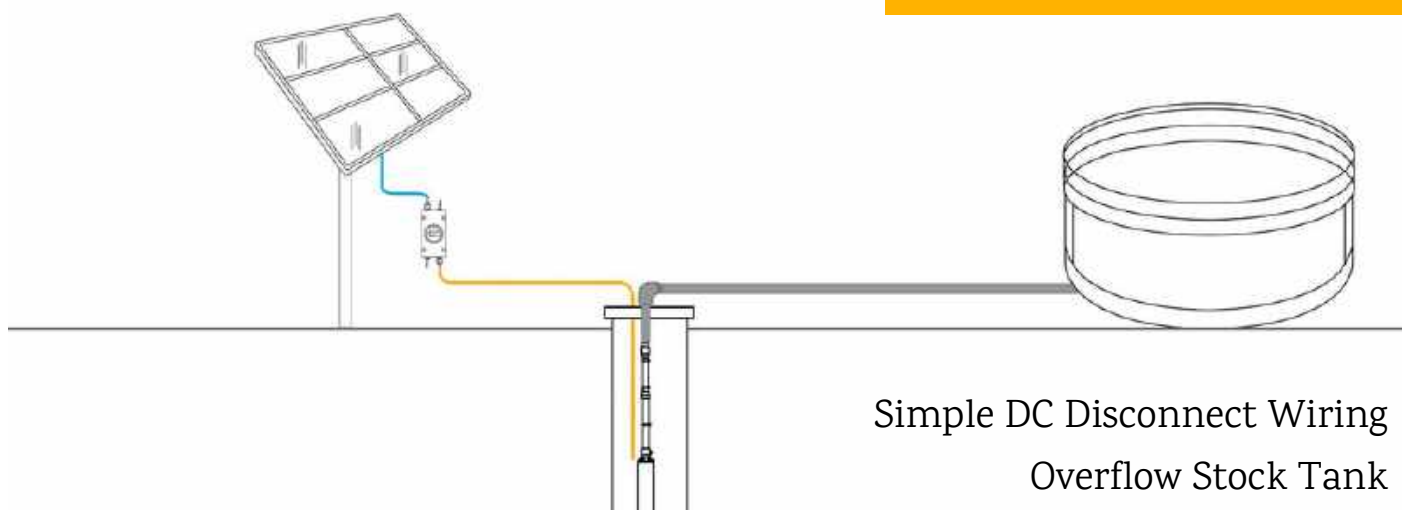
PSC300



	PSC300
H	11.75"
W	7.5"
G	2.75"



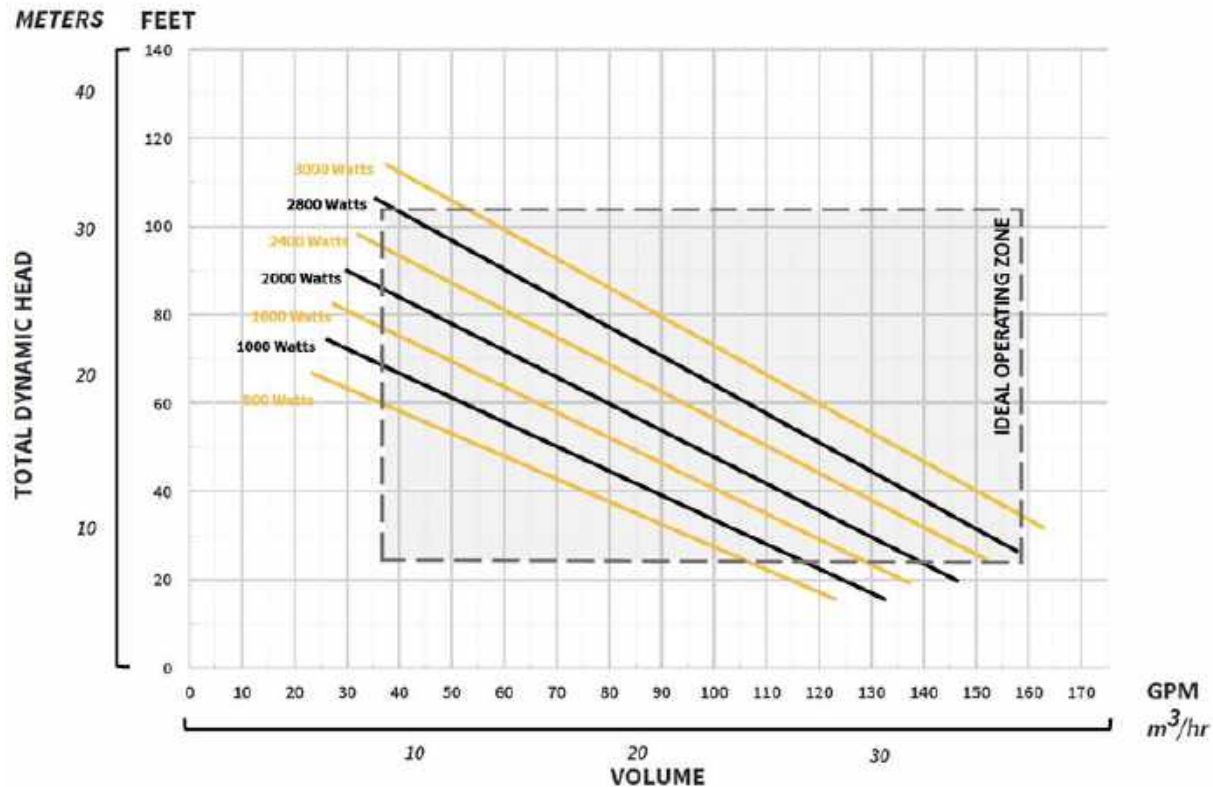
## Solar + AC Diagrams



# W6C-125-80

6 inch Centrifugal Pump

## Solar + AC Volume



The W6C-125-80 is an ultra-high volume centrifugal solar pump with a 6" OD pump end to allow for higher pumping volumes. Featuring an up to 3HP motor, it is ideal for irrigation projects, keeping ponds full, and other applications where maximum flow is desired and total head is minimal.



### Input Voltage:

60-380V

Max Voc 440v

### Input Wattage:

Standard 600 - 3000w

**Sand/Particulate Tolerance:** Good

### PSC300 Controller

(Not required. Only used if Tank/Pressure Shutoff or AC power needed)

### Diameter / Length

5.50" / 37.9"

### Pump Outlet

3" FNPT

### Weight

38.0 lbs

### Box Dimensions

48"x7"x7"

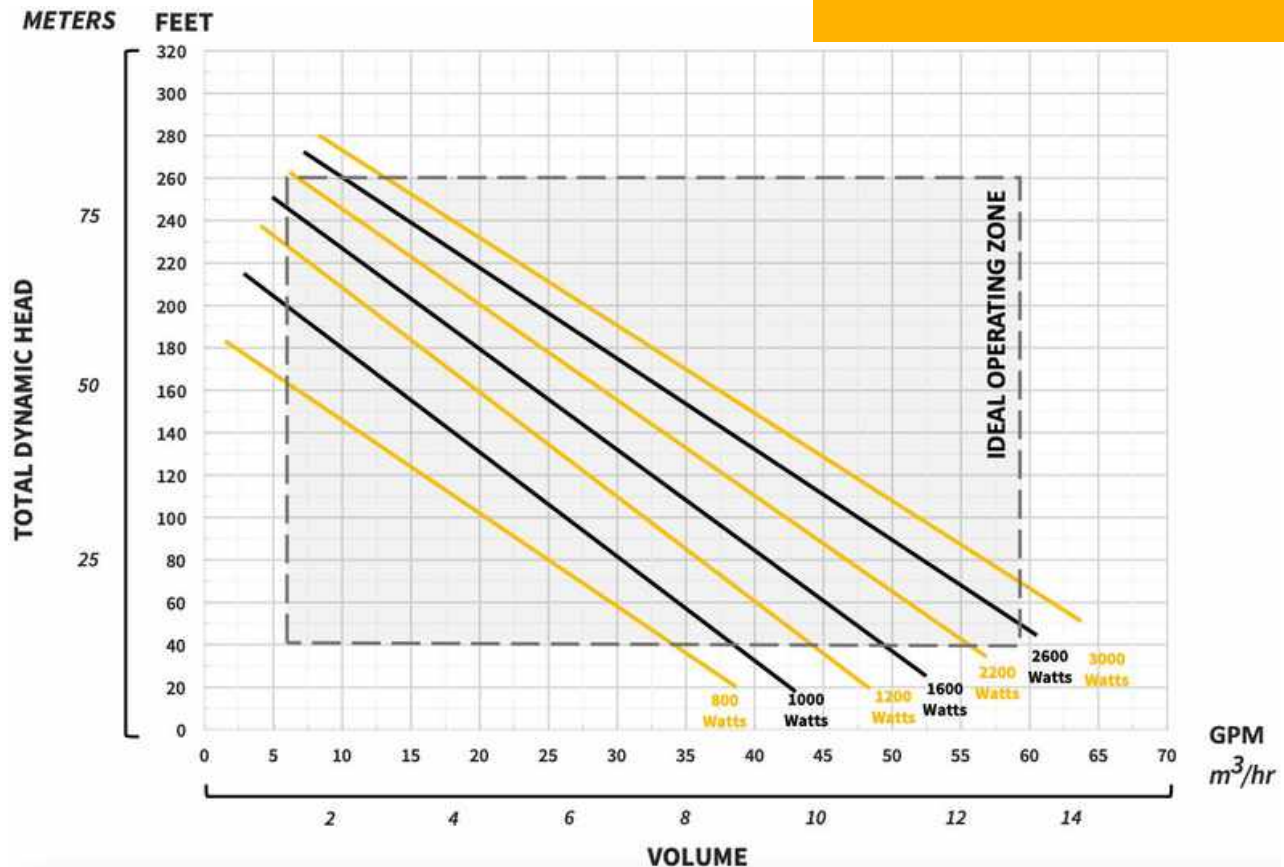


# W4C-65-280

4 inch Centrifugal Pump



Solar + AC Volume



The W4C-65-280 is a high-volume centrifugal solar pump with a 4" OD pump end to allow for a balance between pumping volume and pumping head. Featuring an up to 3HP motor, it is ideal for irrigation projects, keeping ponds full, and other applications where a large volume of water is required.



## Input Voltage:

60-380V

Max Voc 440v

## Input Wattage:

Standard 600 - 3000w

**Sand/Particulate Tolerance:** Good

## PSC300 Controller

(Not required. Only used if Tank/Pressure Shutoff or AC power needed)

## Diameter / Length

3.95" / 38.70"

## Pump Outlet

2" FNPT

## Weight

35.0 lbs

## Box Dimensions

48"x7"x7"

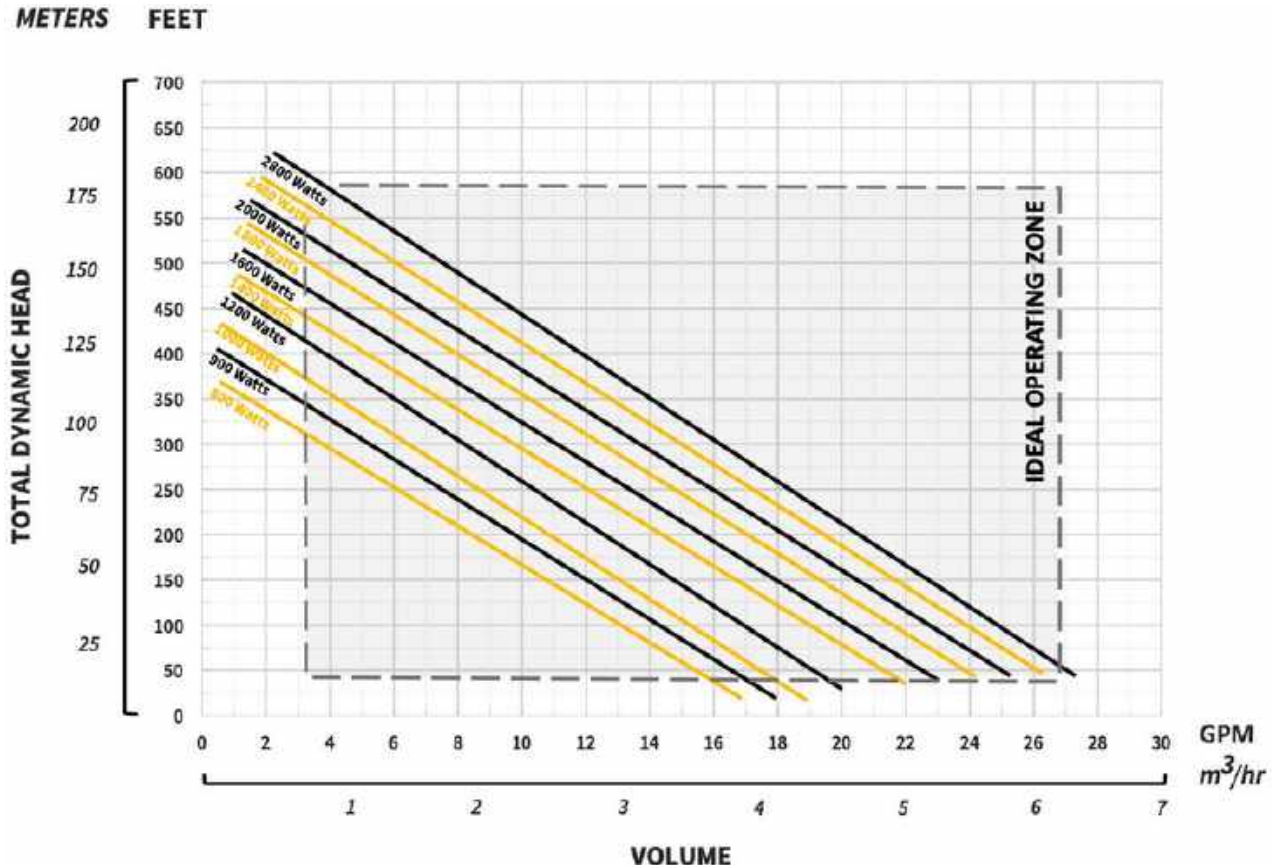




# W4C-26-600

4 inch Centrifugal Pump

## Solar + AC Volume



The W4C-26-600 is a medium-volume centrifugal solar pump with a 4" OD pump end to allow for operation at a higher pumping head for those deeper wells while maintaining impressive volume. Featuring an up to 3HP motor, it is ideal for larger livestock projects, household supply and projects where the water is a bit deeper.

### Input Voltage:

60-380V  
Max Voc 440v

### Input Wattage:

Standard 600 - 3000w

**Sand/Particulate Tolerance:** Good

### PSC300 Controller

(Not required. Only used if Tank/Pressure Shutoff or AC power needed)

### Diameter / Length

3.95" / 45.25"

### Pump Outlet

1.25" FNPT

### Weight

39.0 lbs

### Box Dimensions

48"x7"x7"

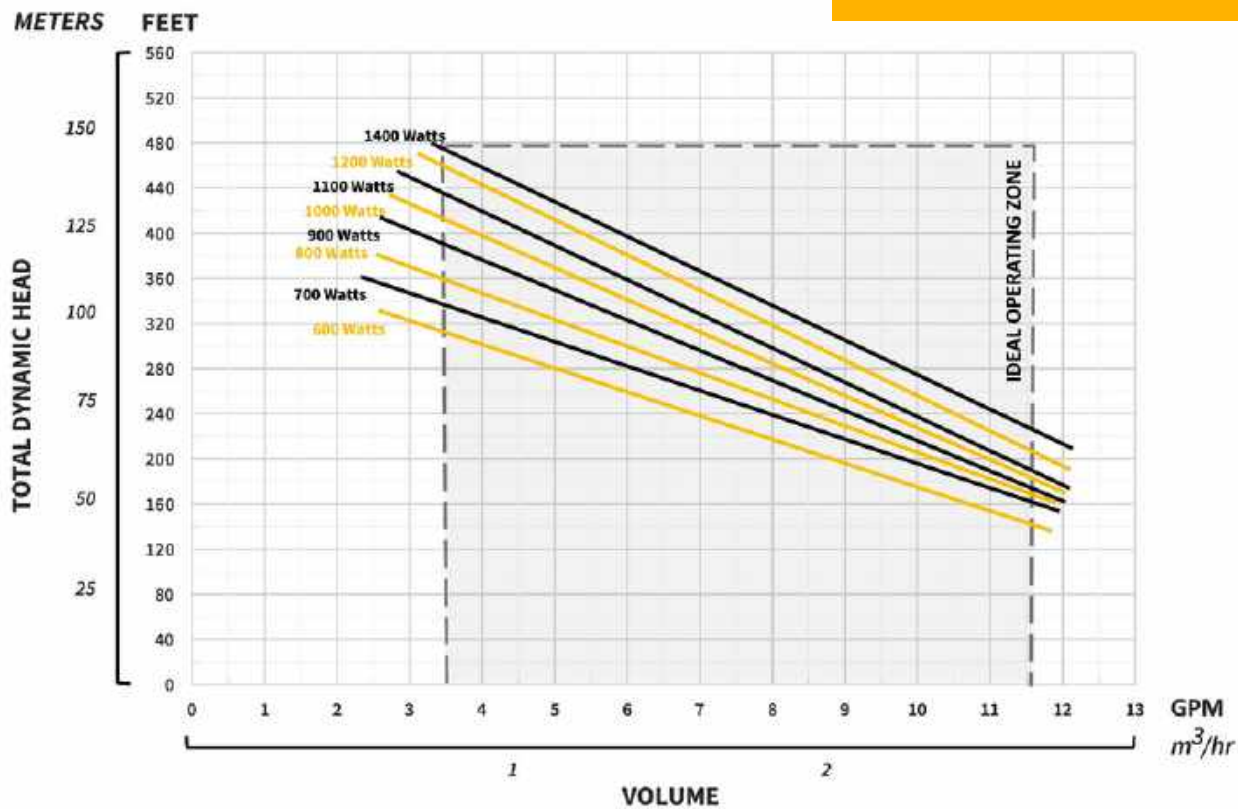


# W4H-12-450

4 inch Helical Pump



Solar+AC Deep



The W4H-12-450 is a medium-volume, 4" helical solar pump designed for operation at higher pumping heads while still maintaining impressive flow. Featuring an up to 1.5HP motor, it is ideal for livestock projects, households, and projects involving particle-free water where maximum daily volume and system efficiency are desired.



## Input Voltage:

60-380V

Max Voc 440v

## Input Wattage:

Standard 600 - 1600w

**Sand/Particulate Tolerance:** Low

## PSC300 Controller

(Not required. Only used if Tank/Pressure Shutoff or AC power needed)

## Diameter / Length

3.95" / 52.50"

## Pump Outlet

1.25" FNPT

## Weight

36.0 lbs

## Box Dimensions

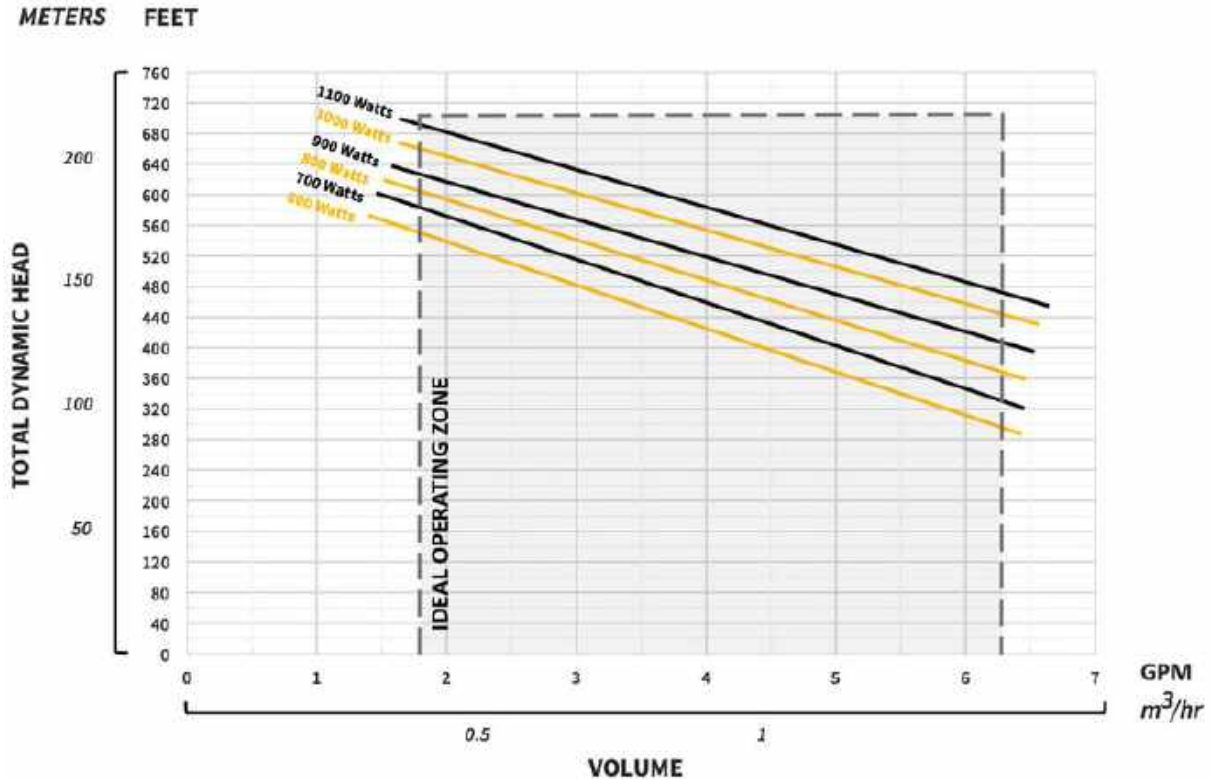
60"x7"x7"



# W4H-6-650

4 inch Helical Pump

Solar+AC Deep



The W4H-6-650 is a medium-volume, 4" helical solar pump designed for operation at high pumping heads. Featuring an up to 1.5HP motor, it is ideal for livestock projects, pumping into storage, and projects involving particle-free water where maximum daily volume and system efficiency are desired.



## Input Voltage:

60-380V

Max Voc 440v

## Input Wattage:

Standard 600 - 1600w

**Sand/Particulate Tolerance:** Low

## PSC300 Controller

(Not required. Only used if Tank/Pressure Shutoff or AC power needed)

## Diameter / Length

3.95" / 52.50"

## Pump Outlet

1.25" FNPT

## Weight

36.0 lbs

## Box Dimensions

60"x7"x7"

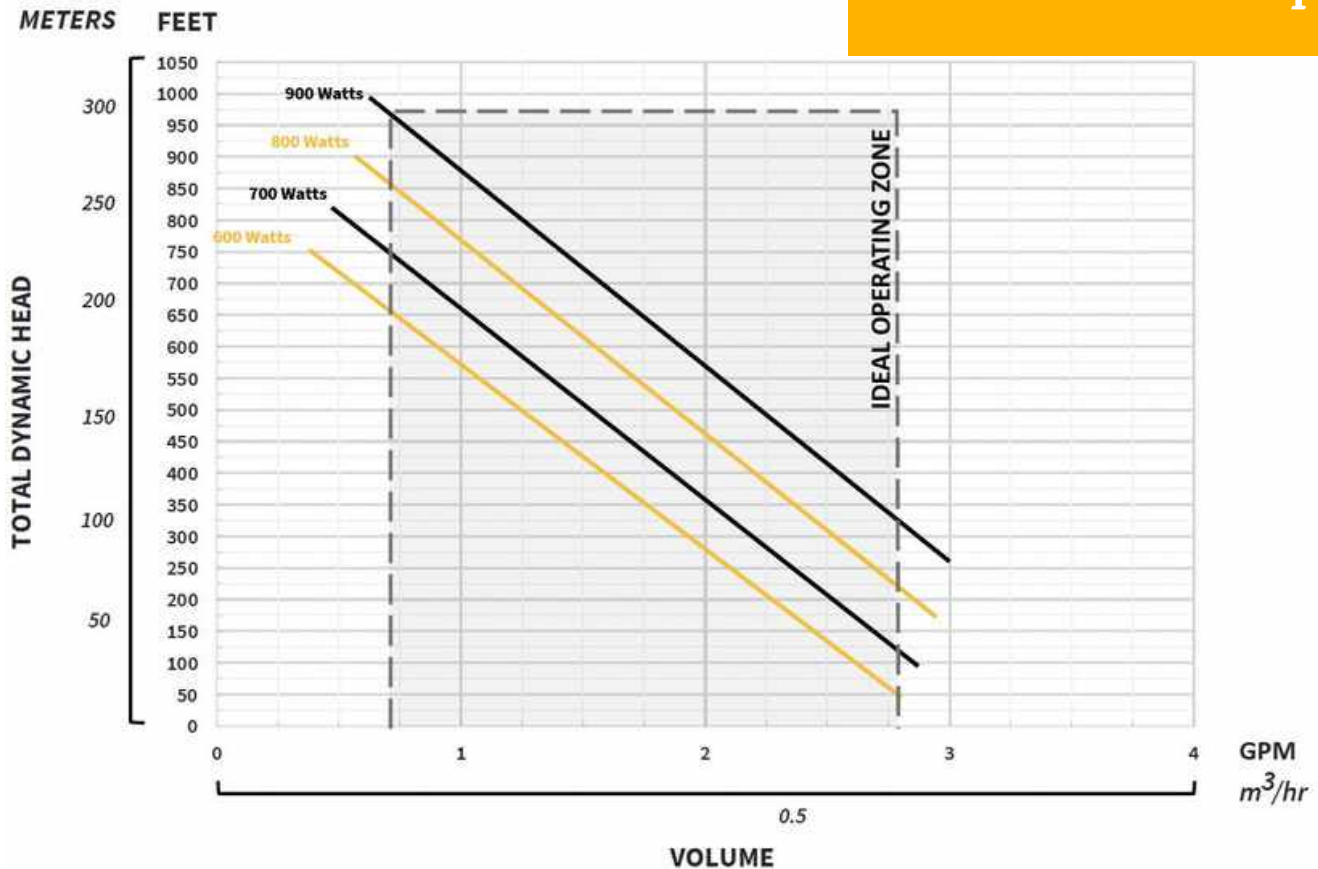


# W4H-3-950

4 inch Helical Pump



Solar+AC Deep



The W4H-3-950 is a low-volume, 4" helical solar pump designed to overcome very high pumping head for those especially deep, low producing wells. Featuring an up to 1.5HP motor, it is ideal for livestock, pumping into storage, and projects involving particle-free water where maximum daily volume and system efficiency are desired.

## Input Voltage:

60-380V  
Max Voc 440v

## Input Wattage:

Standard 600 - 1600w

**Sand/Particulate Tolerance:** Low

## PSC300 Controller

(Not required. Only used if Tank/Pressure Shutoff or AC power needed)

## Diameter / Length

3.95" / 51.40"

## Pump Outlet

1" FNPT

## Weight

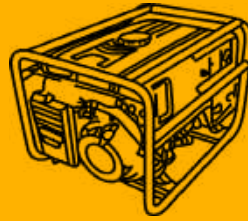
35.0 lbs

## Box Dimensions

60"x7"x7"



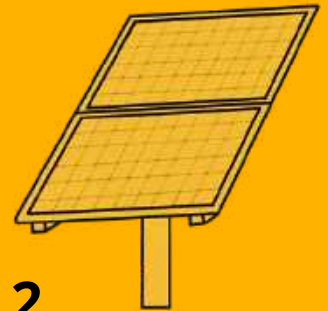
# PSC300 Controller



1

## AC Power Backup

Built-in option to Automatically switch between Solar and 110V or 220V AC power. Can be used with a 2,000-4,000W generator depending on the pump model.



2

## Solar Input

Connects to solar array through DC cut-off switch and plug n' play wiring.



3

## Low Water Sensor

**Optional** Low water sensor can be added if pumping from tanks or other bodies of water. Can shut off pump before run-dry conditions occur.



4a

## Pressure Switch

**Optional** A reverse-action switch can be connected if pressure is used to shut off your system. Great for long distances between tanks, pressure tank or irrigation needs.



4b

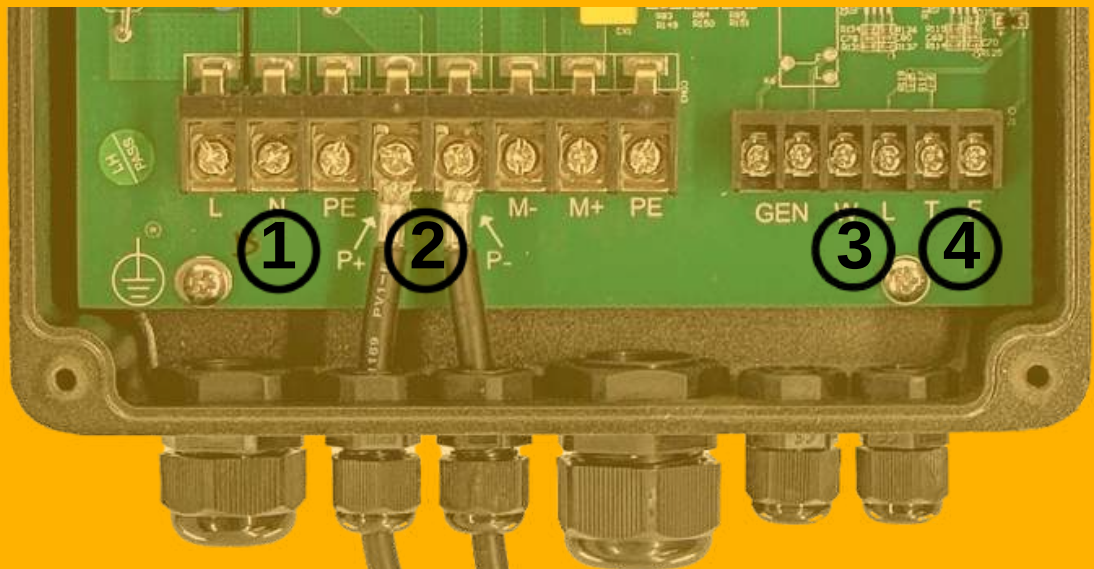
## Float Switch

**Optional AND Included** Provides an electrical signal to the controller when the tank is full, and the controller shuts the pump off in response.

4c

## Wireless Tank Sensor

**Optional** See page 38





# Wireless Tank Sensor



## Avoid installing thousands of feet of tank-full sensor wire!

After years of customer requests and development comes our easy-to-use wireless tank sensor.

- ✗ No more trenching
- ✗ No more running hundreds of feet of wire
- ✗ No more damaged underground wires!

Compatible with all of our WORKHORSE systems as well as other Solar, VFD, and AC Pumps.

120V and 240V pump control systems are available (30A standard) as well as optional battery backup for 24-hour operation.

Wireless Technology: 433MHz LORA Spread Spectrum- Encrypted to prevent interference and crosstalk - No real world limit to number of units in the same area

*"Saved us! The trenched wire to the tank got cut somewhere in a 2000ft run. This wireless shutoff saved us! Installed quickly. Works well." -Tom*

Systems come complete with two base units - a transmitter unit powered by a 10W solar panel and a receiver unit powered by AC power or another 10W panel. Plug the units into their power source, hook up your tank float or tank sensor, connect to your pump controller and you are ready to go.

Tested at over 2.5 miles line of sight.

*\*Moderately flat land with trees and buildings in between. This will not work between two valleys with large hills blocking the signal.*



## How it Works

**The Transmitter Unit** is installed near the water tank and is connected to a float switch or float sensor. Includes: tank float switch (AC systems) or sensor probe (Solar systems), 10W solar panel, mounting bracket, antenna.



**Transmitter** at tank end

**The Receiver Unit** is installed near the pump controller (Solar systems) or starter box (AC systems). Solar versions include: wiring jumpers, 10W solar panel, mounting bracket, and antenna. AC versions include: wiring jumpers, AC contactor with enclosure, mounting hardware, and antenna.



**Receiver** at pump end



## Solar Fusion

Power a wide range of new or existing AC pumps using our Solar Fusion conversion systems. These plug-and-play solutions enable the conversion of 220V AC motors to direct solar operation! They feature a combination inverter/controller and an appropriately sized solar array to operate submersible, booster, dewatering, and many other types of pumps. Also available as a package with pump and motor - please contact us for details.



### Compatibility:

- Three-wire, single-phase 220V AC pumps between 1/2HP and 3HP
- Three-phase 220V AC pumps up to 5HP

### Solar Fusion Features:

- Rugged aluminum-framed monocrystalline solar panels
- DC disconnect switch and solar wire with MC4 connectors
- Pre-programmed, IP65-rated Solar Fusion Controller
- Integrated AC auto-switching to supplement solar operation using single-phase 220V AC service
- Built-in low water detection - no sensor required
- Controller mounting brackets and hardware
- Watertight wire connectors and splice kits
- Comprehensive 3-year warranty





# Battery Backup Systems

**Easily backup water pumps & other AC loads with Power Train™.**

Power Train Battery Backup Systems provide added peace of mind when pumping is needed outside of daylight hours. These systems are designed with our Solar+AC Series pumps in mind, but they can also power other AC/DC pumps or VFD systems compatible with single phase 220V AC input.

Utilizing a solar array, the Power Train Inverter charges and manages a bank of GEL batteries. If insufficient solar is available, the Inverter offers a 220V AC input for charging with a generator or grid power.

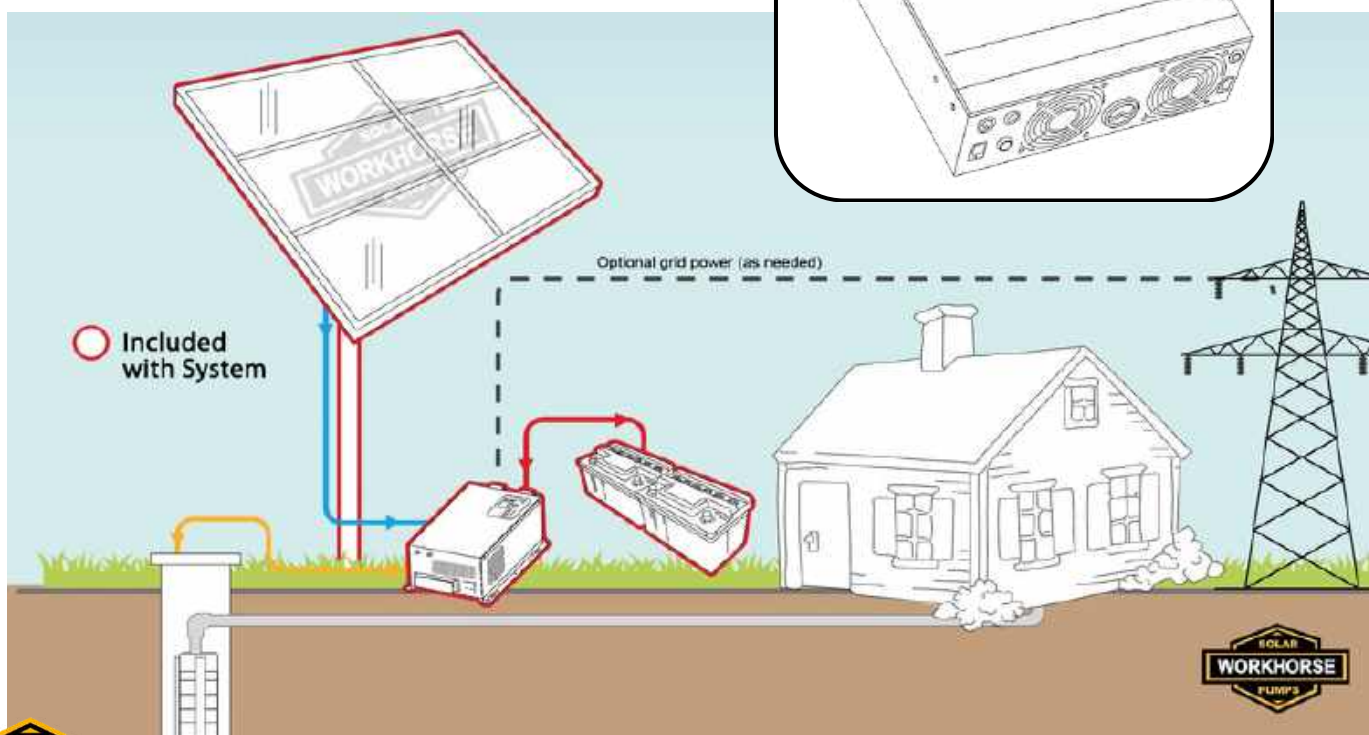
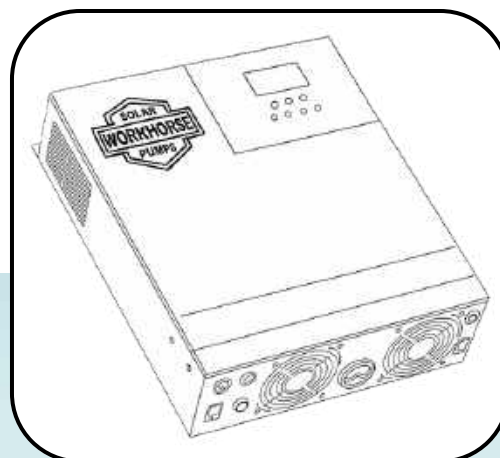
We offer Power Train in a variety of configurations to meet a wide range of demands. All kits include solar panels, inverter, GEL battery bank, and wiring to hook everything up.

Ask about optional enclosure for easy install!

**Power Train™**

## Power Train Features:

- Rugged aluminum framed mono-crystalline solar panels
- DC disconnect switch and solar wire with MC4 connectors
- Solar Train inverter/charger
- Deep Cycle GEL batteries and DC breaker/fuse
- Battery wiring and jumpers
- Scalable design
- Comprehensive 3-year warranty

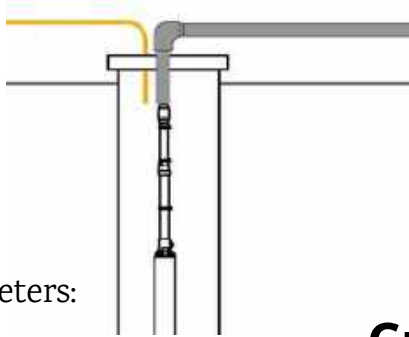


# ACCESSORIES

## Stainless Steel Well Seals

Enhance your installation with our Stainless Steel Well Seals!

Made of superior high-quality 304 stainless steel. High weight load capacity - perfect for hanging submersible pumps in deep wells.



- Fits Casing Diameters: 4", 5", 6" and 8"
- Pipe Hole: 1.25"
- Auxiliary hole for wiring
- Rubber gasket expands for tight fit



## Custom Engravings Available!

Have WORKHORSE engrave your company's name, logo, contact information, and more directly onto a well seal, providing a professional and lasting impression. Take advantage of our custom design services and make your well seals stand out!

**Contact us now to learn more!**



*"Having all my company info on a well seal is a real unique touch. It leaves my mark on every install!" - Rick*

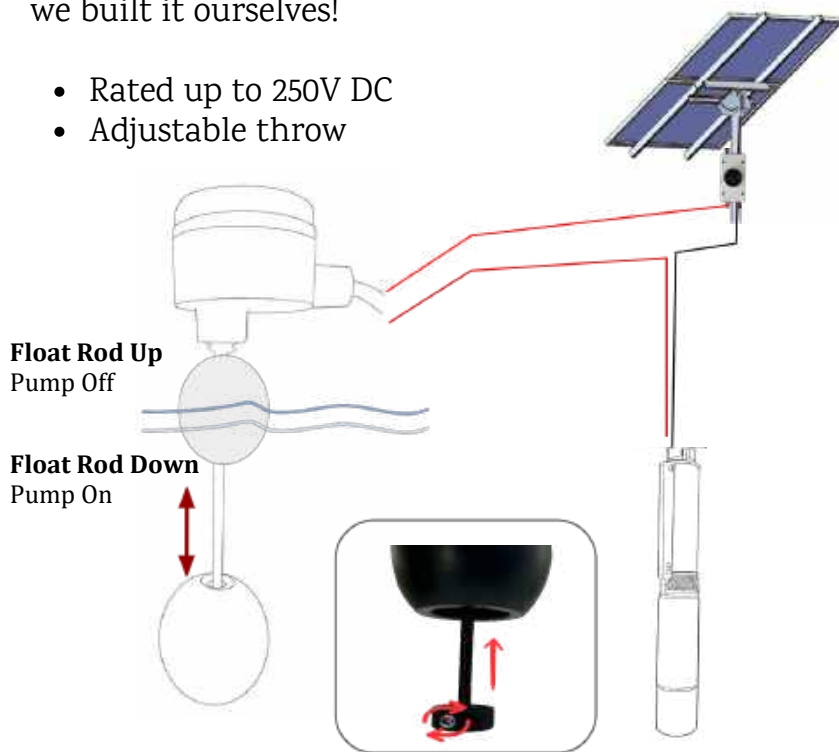
# ACCESSORIES

## High Voltage DC Float Switch

Finally a float switch designed specifically for solar pumps!

For years, we have been searching for a tank float that could handle higher DC voltages, but nothing met our standards... so we built it ourselves!

- Rated up to 250V DC
- Adjustable throw



We also stock a wide range of high-quality 304 stainless steel fittings in common sizes as well as hard-to-find adapters. Let us know what you need to complete your installation!

- Tees
- Couplers
- Plugs
- Nipples
- Reducing couplers
- Bushings
- Check valves
- Ball valves
- Flow control valves



**All parts are right here in the United States**

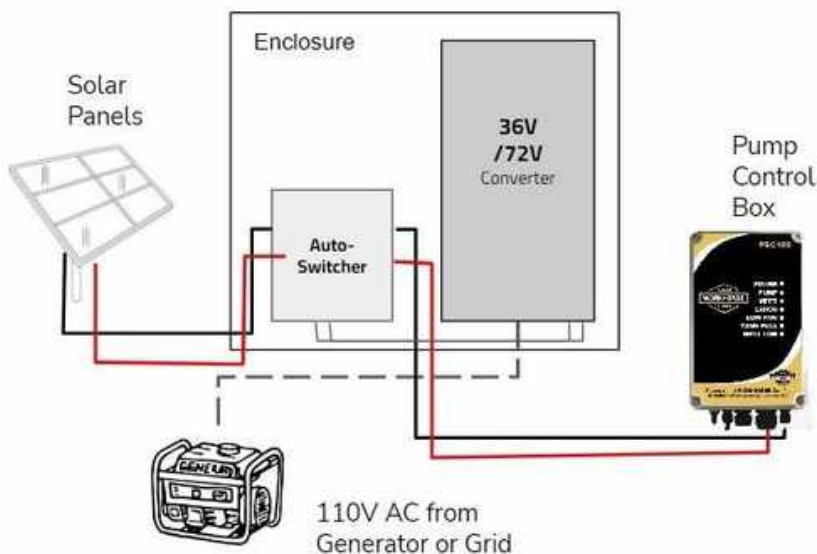




# ACCESSORIES

## AC to DC Auto-Switcher

This Auto-Switcher can take 110V AC power from the grid or a generator and convert it to DC power to run your pump when sun isn't shining. 36V and 72V converters are set to a fixed voltage, and will prioritize solar whenever available. Compatible with Narrow Series and Direct-Drive Series Systems.



Auto-Switchers Include:

- Lockable, weather-resistant enclosure
- 5 feet of solar wire
- 5 feet of AC wire + three prong plug

## AC to DC Manual Converter

Essentially an AC to DC Power Supply (36-90v, 360-1000w) with 3 wires from a standard 3-prong 110v plug that can go right into your generator. MC4 Connectors attach from the power supply to the leads already wired to your controllers P+ and P- terminals. Unit does not support automatic switching. The solar panels need to be unplugged so the converter can be attached to the system.



**Manual 72V Converter**



**Manual 36V Converter**

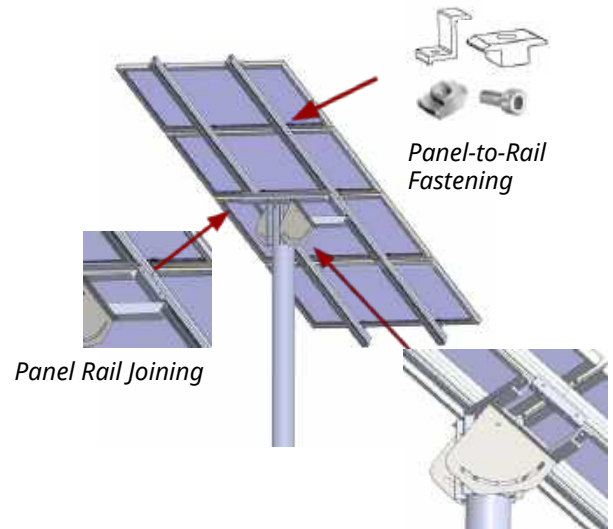
A man with a beard and sunglasses, wearing a green shirt, is working on a solar panel rack. He is holding a bundle of black cables. The rack is made of metal and is mounted on a pole. The background shows a green field and trees under a bright sky.

## **WORKHORSE Adjustable Tilt Top-of-Pole Solar Panel Racks**

# Solar Panel Racking Systems

## Built for Years in the Field

- ✓ 100% stainless steel and extruded anodized aluminum rails
- ✓ Rugged laser-cut stainless steel plates
- ✓ Rated for up to 81 MPH winds
- ✓ Adjustable tilt - choose between seasonal adjustments or year-round angle
- ✓ Shipped free alongside any **WORKHORSE** solar pump system



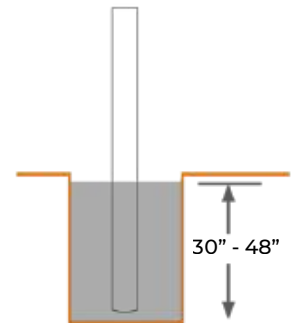
**200 Watts**  
**2P - 2 Panels**  
Mounts to 2" ID, 2-3/8"  
OD Steel Post



**400 Watts**  
**4P - 4 Panels**  
Mounts to 4" ID, 4-1/2"  
OD Steel Post



**800 Watts**  
**8P - 8 Panels**  
Mounts to 4" ID, 4-1/2"  
OD Steel Post



*Bury the steel post 30-48 inches below the ground based on your sites frost line.*

## Easily Expandable

Easily upgrade from a 4P to an 8P Purchase the **4P-to-8P Upgrade Kit** that includes the needed hardware to expand the 4 Panel into an 8 Panel Mount on the same 4" post.

## How to mount 12+ 100W Panels or 300W+ Panels

More than 800W? Using 300W+ panels? Our Scalable Ground Mount options offer an alternative to multiple top-of-pole mounts and offer maximum expandability! Perfect for larger solar arrays of 2200W and greater. Common sizes include:

**VC2-HR4 - 2200 Watts / (6) 370W Panels**  
**VC2-HR4 - 3000 Watts / (8) 370W Panels**  
**VC4-HR4 - 6000 Watts / (16) 370W Panels**  
Many other sizes available!



**3000 Watts**  
**VC2-HR4 - (8) 370W Panels**  
Mounts to 2-3/8" OD Steel Post



# Solar Panel Specs

## Our Top Choice: Back40 Solar 100W

Model: B40-M100W-38L  
 Peak Power: 100W Mono  
 Dimensions: **38.6 in x 20.9 in x 1.18"**  
 Weight: 13.2 lbs  
 Max Power Voltage (Vmp): 19.8V Open  
 Circuit Voltage (Voc): 23.4V Max Power  
 Current (Imp): 5.06A Short Circuit  
 current (Isc): 5.35A

## Larger Panels

Model: B40-M370H / B40-M375H  
 Peak Power: 370W-375W Mono  
 Dimensions: **69.1 in x 40.9 in x 1.4"**  
 Weight: 43.0 lbs  
 Max Power Voltage (Vmp): 34.6V Open  
 Circuit Voltage (Voc): 41.1V Max Power  
 Current (Imp): 10.84A Short Circuit  
 current (Isc): 11.60A



## All Panels Are:

UL1703 Certified per Intertek  
 ETL  
 Nationally Recognized Testing  
 Facility

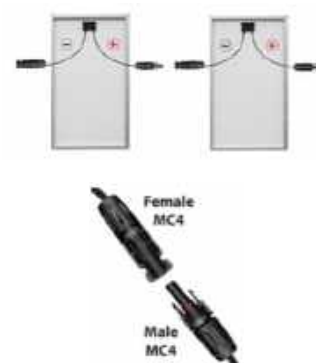
Tested to Hail, Wind  
 Requirements,  
 IEC 612512 / IEC 61646

*UL1703 Standards comply  
 fully with NRCS*

## Why 100W Panels?

100 solar panels are ideal if you are running single-man crews, as they are easy to lift and install by a single person. Two-man crews can split up the work and have a single person install the solar array without having to constantly ask for help lifting and holding solar panels. 100W panels are also extremely easy to ship via ground on any carrier, and the shipping cost is cheaper than sending larger panels via palletized freight.

Customers who live in areas that receive hail prefer 100W panels, as replacement of a single 100W panel is more affordable than a 300W+ panel, and results in less pump downtime. 100W panels also allow for easy and building block-like array expansion over time as needs change.



You will link your solar panels together and connect to the controller by clipping **MC4 connectors** together. Each MC4 connector is either a male end or female end (see image). They simply snap together to make safe and easy connections.



[workhorsepumps.com](http://workhorsepumps.com)  
**Call or Text:** 916-623-4621  
[support@workhorsepumps.com](mailto:support@workhorsepumps.com)

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