NEDLAND INDUSTRIES INC.

Presents:

# SUN BUILT
# SOLAR POWER PACK
# 12 VDC SELF-CONTAINED

LET'S CUT THE POWER CORD

NEDLAND INDUSTRIES INC.

Presents:

# SUN BUILT
# SOLAR POWER PACK
# 24 VDC STATIONARY

# NEDLAND INDUSTRIES, INC

# SOLAR POWER PACK MODEL HSP-SC

## Introduction

**Thank you for purchasing a Nedland Solar Power Pack Self Contained Unit**

This compactor is designed to give you a reliable and superior performance.

- No electric bills
- No electrical outlets
- No 3 phase service for 208-230/460
- No 220/100Amp Electrical Service Needed
- No UL required for 12 or 24 Volt DC
- No complicated inverters

- Simple and compact design
- Safe 12 Volt DC power supply
- User Friendly
- Above all affordability

Any service or repair instructions contained in this manual should be performed by factory authorized personnel only.

If you should need assistance with your equipment, please contact your distributor. When contacting your distributor, you will need to provide:

- Serial Number: _____
- Installation Date: _____
- Electrical Schematic Number: _____

**If you have any safety concerns with the equipment, or need further information, please contact us at 1-800-447-4925 or:**

**Nedland Industries Inc.**
**315 Railroad Street**
**Ridgeland, WI 54763**

## REPLACEMENT PARTS LIST FOR NEDLAND SOLAR POWER PACK MODEL HSP -SC

| NEDLAND PART # | DESCRIPTION | QTY |
|---|---|---|
| **ELECTRIC PANEL** | | |
| EL11100 | Panel box | 1 |
| TE70500 | PLC | 1 |
| ME70115 | Solar Controller | 1 |
| ME18200 | Resistor | 1 |
| LF13950 | Fuse Block Terminal | 1 |
| | | |
| | | |
| **NEDLAND POWER UNIT** | | |
| UC20500 | Suction Filter | 1 |
| NK10000 | Sub-Plate | 1 |
| NA27550 | Valve | 1 |
| ME12276 | Pressure Switch | 1 |
| EK10050 | 12VDC 2Kw Motor 1750 rpm 200 amps | 1 |
| EK10100 | 24VDC 3Kw Motor 1750 rpm 160 amps | 1 |
| WD12050 | Hi-Lo pump | 1 |
| SU10000 | Relief valve | 1 |
| MH11880 | Oil level Gauge | 1 |
| **SOLAR PANEL** | | |
| MP34400 | Battery 12VDC 110ah / 20hr | 1 |
| WR20000 | Red battery Cable | As required |
| WR20500 | Black battery Cable | As required |
| MS10100 | Solar Panel 135 Watt 12VDC | 1 |
| MS10000 | Solar Panel 24 VDC | 1 |
| LF13850 | Fuse Holder | 1 |
| LF13800 | Fuse | 1 |
| ME70250 | Battery Terminals | 1 |

Optional ME70125 Electric Charger 12 v

## Connecting and Orienting the Solar Panel

After mounting the solar panel, connect the cord to the plug in on the power unit.



### Orientation of the Solar Panel

In the northern hemisphere, it is best for the solar panels to face southward. In the southern hemisphere, it is best that they face northward. The best angle from the horizontal position will vary by different season, but the following equation is general example for winter tilt, which is about 10 degrees steeper than normal recommendations:

Site Latitude x (0.9) + 29 degrees =* angle from horizontal position for best tilt

The best angle for optimum performance will have to be determined on site. Some factors that will prohibit optimum performance are clouds, haze, trees, or any other opaque object obstructing sunlight from the solar panel. These factors are just as important in determining the best position and angle for the solar panel.

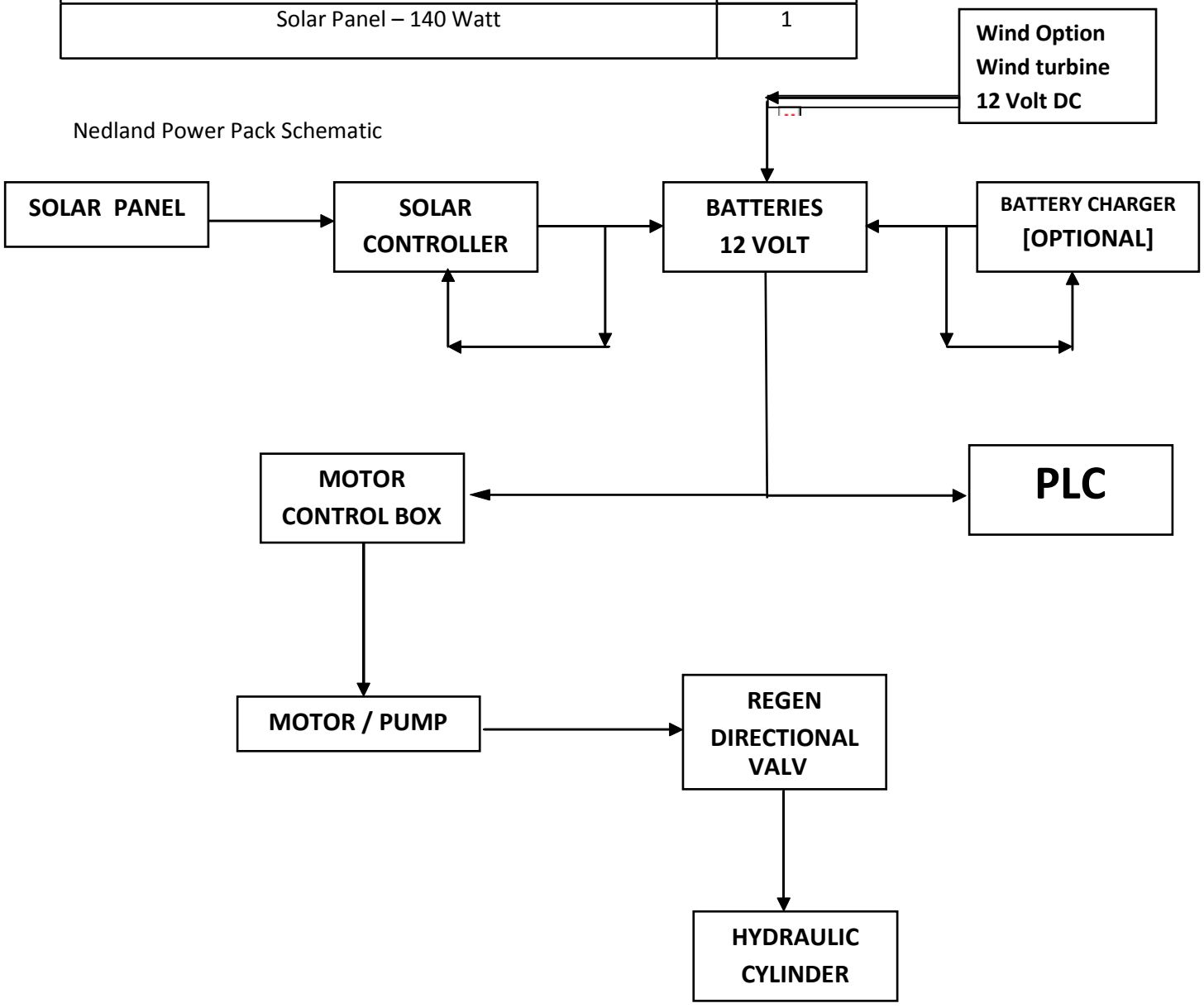
| Latitude | Angle | % Of optimum |
|---|---|---|
| 25° (Key West, Taiwan) | 51.5° | **85%** |
| 30° (Houston, Egypt) | 56° | **86%** |
| 35° (Albuquerque, Japan) | 60.5° | **88%** |
| 40° (Denver, Spain) | 65° | **89%** |
| 45° (Minneapolis, Italy) | 69.5° | **89%** |
| 50° (Winnipeg, East Europe) | 74° | **93%** |

It is recommended that you independently research and select your site for the optimum output.

# NEDLAND SOLAR POWER PACK MODEL HSP -SC

| COMPACTOR MODEL HSP-SC SPECIFICATIONS | QUANTITY |
|---|---|
| Motor - 12 Volt DC 2 kw | 1 |
| Motor Pump Combination - 8 GPM HI LO | 1 |
| Batteries – sealed AGM deep-cycle lead acid 12 volt, 110 amp hour | 1 |
| Solar Panel – 140 Watt | 1 |

Nedland Power Pack Schematic



## NEDLAND SOLAR POWER PACK MODEL HSP -SC

### Different options for mounting the Solar Panel

NOTE: Before deciding on the location of the solar panel stand, read the "Orientation of the Solar Panel" recommendations. The solar panel and stand can be mounted on either the top of the power unit, a wall, roof, or on a pole located within 50 to100 feet of the power unit and connected to the solar charger controller with an S.O. cord or 12 gauge wiring in conduit.

The required bolts for mounting the panel will vary depending on the chosen installation. There are four or more 1/2" to 1” holes on the mounting bracket, all 10" to 12” apart from the centers of the adjacent holes. These match the holes in the top of the power unit. For wall, roof, or pole installations, uses the proper anchor bolts rated for the specific composition and reference the diagrams below as guidelines for installation.

| | |
|---|---|
| **Pole mount Installation** |  |
| **Wall mount Installation** |  |
| **Roof mount Installation** |  |

# NEDLAND SOLAR POWER PACK MODEL HSP -SC

## General Installation Requirements

**CAUTION:** The panel box may contain high voltage components. Only authorized service personnel should be allowed inside to service the power pack

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### Electrical Connections

Nedland Solar power pack is designed to run on its own solar power. But for certain application an additional power source may be needed:

a) Usage is heavy beyond the charging capacity of the solar panel (s) an auxiliary charger is required
b) Under extreme cold environment an oil heater is necessary for that a power source of 120 v 15Amp is sufficient

### Anchoring

The power unit should be anchored to the concrete pad using a minimum of four 1/2" x 8" long anchor bolts. These bolts can be secured to the concrete pad using "Porok" or special concrete anchors.

It is recommended to drill these holes into the concrete after pre-locating the power unit to its desired location. When the power unit has been permanently located, shimmed to compensate for unevenness, and anchor bolts set, and then tighten all nuts securely.

**NOTE: Ensure that anchor bolts are not allowed to torque or twist the power unit when tightened**

# NEDLAND SOLAR POWER PACK MODEL HSP-SC

## Maintenance

**WARNING: Never perform maintenance on the Solar Power Unit without first following the safety instructions**

Follow all Periodic Maintenance procedures in the Owner's Manual that is specific to the model, as well as the following:

### Monthly

1. Check the solar panel for dust or residue and carbon deposits (especially in a heavily particulate or urban environment) and clean as necessary.
2. Use of hose stream or wiping it off with a clean, damp cloth is sufficient.
3. Do not use harsh chemicals and do not clean the panel while it is hot.
4. Check battery cables, connections, and terminals for wear and/or corrosion.

**Recommended Oil**

- Bio degradable Hydraulic Oil (Ultra Guard BHF-46)
- Do not use water base oil
- For extreme weather conditions synthetic oil is recommended

# Nedland Industries, Inc.
# 12 Volt Solar Panel

## *Specifications*

| **Electrical performance as per Standard Test Conditions** | |
|---|---|
| Maximum Power (Pmax) | 135W (+5%/-5%) |
| Maximum Power Voltage (Vmpp) | 17.7V |
| Maximum Power Current (impp) | 7.63A |
| Open Circuit Voltage (Voc) | 22.1 V |
| Short Circuit Current (Isc) | 8.37A |
| Max System Voltage | 600V |
| Temperature Coefficient of Voc | -8.0X10-$^{2}$W°C |
| Temperature Coefficient of Isc | 5.02x10"$^{3}$A/°C |
| NOCT (Nominal Operating Cell Temperature) | 47.5°C |

| **Electrical Performance at 800W/m$^2$, *NOCT, AM1.5** | |
|---|---|
| Maximum Power (Pmax) | 95W |
| Maximum Power Voltage (Vmpp) | 15.7V |
| Maximum Power Current (Impp) | 6.10A |
| Open Circuit Voltage (Voc) | 20.0V |
| Short Circuit Current (Isc) | 6.79 A |

| **Cells** | |
|---|---|
| Number per Module | 36 |

| **Module Characteristics** | |
|---|---|
| Length x Width x Depth | 1500mm[59.1 in]x668mm[26.3in]x46mm[1.8in] |
| Weight | 12.5kg (27.5lbs.) |
| Cable | (+)840mm[33.0in] , (-)840mm[33.0in] |

| **Junction Box Characteristics** | |
|---|---|
| Length x Width x Depth | 100mm[3.9in]x108mm[4.3in]x15mm[0.6in] |
| IP Code | IP65 |

| **Others** | |
|---|---|
| Operating Temperature [This temperature is based on cell temperature.] | -40°C~90'C |
| Maximum Fuse | 15A |

# Nedland Industries, Inc.

## 24 Volt Solar Panel

## *Specifications*

| **Electrical performance as per Standard Test Conditions** | |
|---|---|
| Maximum Power (Pmax) | 224W(+10%/-5%) |
| Maximum Power Voltage (Vmpp) | 29.28V |
| Maximum Power Current (impp) | 7.66A |
| Open Circuit Voltage (Voc) | 36.6V |
| Short Circuit Current (Isc) | 8.33A |
| Max System Voltage | 600V |
| Temperature Coefficient of Voc | -0.36%/°C |
| Temperature Coefficient of Isc | 0.053%/°C |
| NOCT (Nominal Operating Cell Temperature) | 47.5°C |

| **Electrical Performance at 800W/m², *NOCT, AM1.5** | |
|---|---|
| Maximum Power (Pmax) | 157W |
| Maximum Power Voltage (Vmpp) | 25.9V |
| Maximum Power Current (Impp) | 6.10A |
| Open Circuit Voltage (Voc) | 33.0V |
| Short Circuit Current (Isc) | 6.75 A |

| **Cells** | |
|---|---|
| Number per Module | 60 |

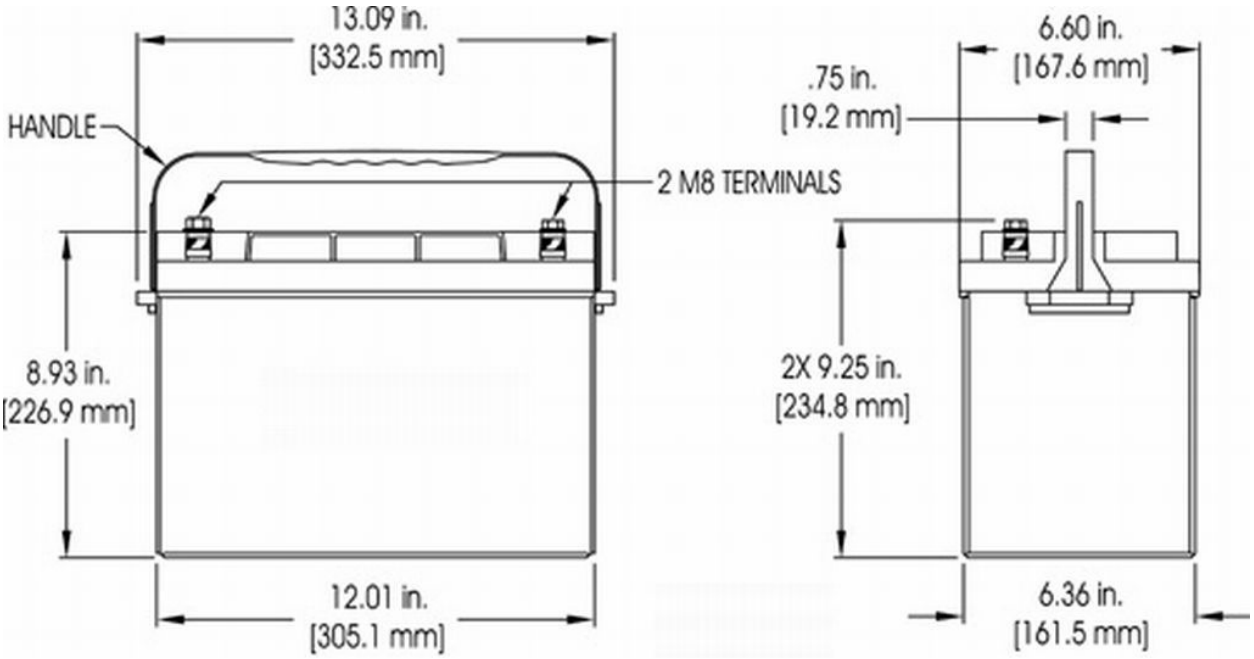
| **Module Characteristics** | |
|---|---|
| Length x Width x Depth | 1640mm[64.6 in]x994mm[39.1in]x46mm[1.8in] |
| Weight | 20.0kg (44.1lbs.) |
| Cable | (+)1100mm[43.3in] , (-)1100mm[43.3in] |

| **Junction Box Characteristics** | |
|---|---|
| Length x Width x Depth | 100mm[3.9in]x108mm[4.3in]x15mm[0.6in] |
| IP Code | IP65 |

| **Others** | |
|---|---|
| Operating Temperature [This temperature is based on cell temperature.] | -40°C~90'C |
| Maximum Fuse | 15A |

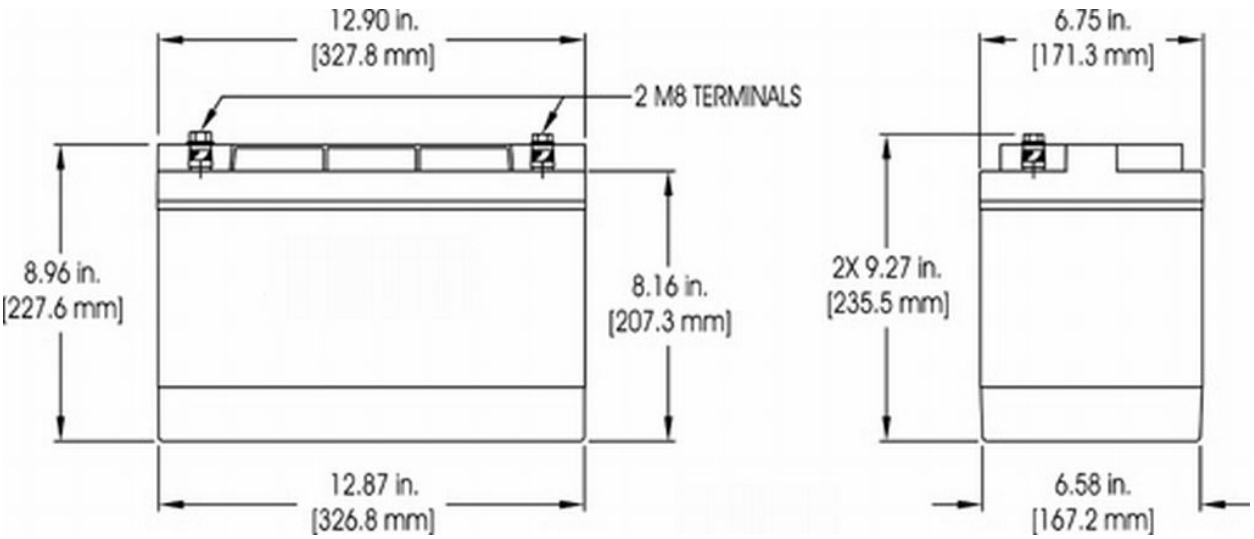
# NEDLAND INDUSTRIES, INC
# AGM DEEP CYCLE MARINE BATTERY
# SPECIFICATIONS

*Nominal Voltage_____12 volts*
*Amp hour capacity at 20 hour rate_____ 100 amp hour*
*Reserve Capacity at 25 amp discharge rate____186 minutes*
*Reserve Capacity at 15 amp discharge rate____324 minutes*
*Reserve Capacity at 8 amp discharge rate ____655 minutes*
*Dimensions (inches)_____Length=13.09*, Width= 6.77, Height= 9.25**
*Dimensions (mm)_____Length=332.5, Width=167.6, Height=234.8*
*Weight _____ 65 pounds / 29.5 kilograms*
*Recommended charge voltage _____ Bulk Charge 14.2 – 14.6 volts*
*_____ Absorption/Acceptance Charge 14.2 - 14.6 volts*
*_____ Float Charge 13.1 to 13.4 volts*
*Recommended Charge Amperage _____ Up to 100% of the rated amp hour capacity*
*Self-Discharge Rate_____ 2% per month at 77°F (25°C)*
*Operating Temperature _____ -50° to 150° F (-45 to 65.5 C)*
*Cycle life_____ 1,100 cycles to 50% DOD, 500 cycles to 100% DOD*
*Warranty _____ Refer to manual for warranty information by application*



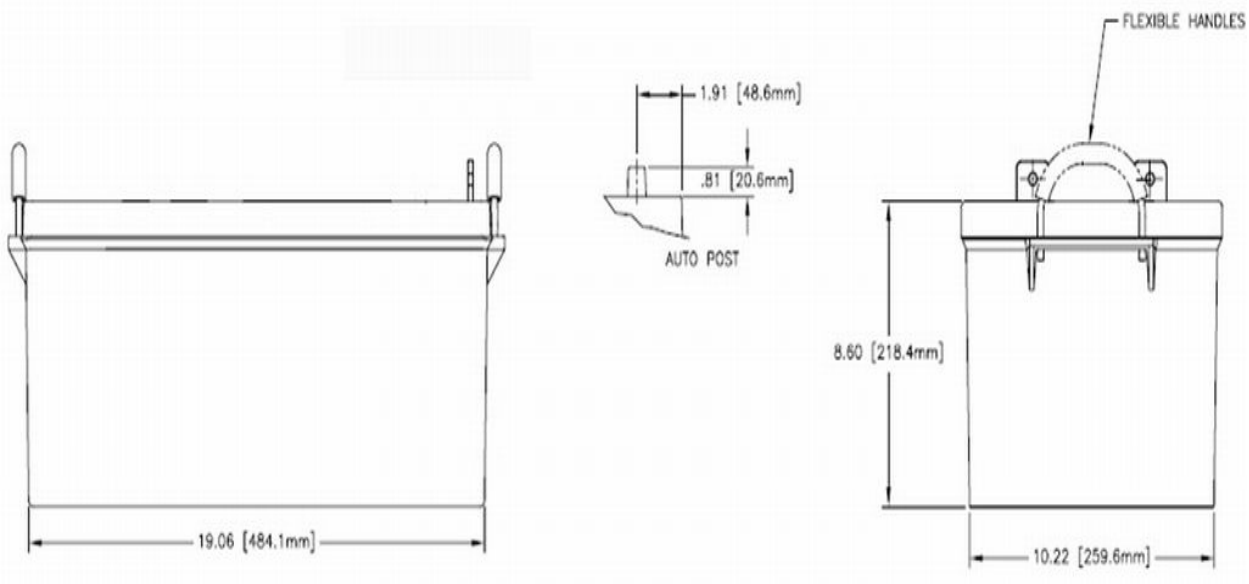
# NEDLAND INDUSTRIES, INC
# AGM DEEP CYCLE MARINE BATTERY
# SPECIFICATIONS

*Nominal Voltage_____12 volts*
*Amp hour capacity at 20 hour rate_____ 105 amp hour*
*Reserve Capacity at 25 amp discharge rate____195 minutes*
*Reserve Capacity at 15 amp discharge rate____340 minutes*
*Reserve Capacity at 8 amp discharge rate ____688 minutes*
*Dimensions (inches)_____Length=12.90*, Width= 6.75, Height= 9.27**
*Dimensions (mm)_____Length=328, Width=172, Height=236*
*Weight _____ 69 pounds / 31.4 kilograms*
*Recommended charge voltage _____ Bulk Charge 14.2 – 14.6 volts*
*_____ Absorption/Acceptance Charge 14.2 - 14.6 volts*
*_____ Float Charge 13.1 to 13.4 volts*
*Recommended Charge Amperage _____ Up to 100% of the rated amp hour capacity*
*Self-Discharge Rate_____ 2% per month at 77°F (25°C)*
*Operating Temperature _____ -50° to 150° F (-45 to 65.5 C)*
*Cycle life_____ 1,100 cycles to 50% DOD, 500 cycles to 100% DOD*
*Warranty _____ Refer to manual for warranty information by application*



# NEDLAND INDUSTRIES, INC
# AGM DEEP CYCLE MARINE BATTERY
# SPECIFICATIONS

*Nominal Voltage_____12 volts*
*Amp hour capacity at 20 hour rate_____ 255 amp hour*
*Reserve Capacity at 25 amp discharge rate____475 minutes*
*Reserve Capacity at 15 amp discharge rate____825 minutes*
*Reserve Capacity at 8 amp discharge rate ____1670 minutes*
*Dimensions (inches)_____Length=20.76*, Width= 10.89, Height= 9.72**
*Dimensions (mm)_____Length=527, Width=277, Height=247*
*Weight _____ 162 pounds / 73.6 kilograms*
*Recommended charge voltage _____ Bulk Charge 14.2 – 14.6 volts*
*_____ Absorption/Acceptance Charge 14.2 - 14.6 volts*
*_____ Float Charge 13.1 to 13.4 volts*
*Recommended Charge Amperage _____ Up to 100% of the rated amp hour capacity*
*Self-Discharge Rate_____ 2% per month at 77°F (25°C)*
*Operating Temperature _____ -50° to 150° F (-45 to 65.5 C)*
*Cycle life_____ 1,100 cycles to 50% DOD, 500 cycles to 100% DOD*
*Warranty _____ Refer to manual for warranty information by application*



# NEDLAND INDUSTRIES,INC
# UNIVERSALBATTERY
# Specifications &Characteristics

| | |
|---|---|
| Nominal Voltage | 12V |
| Rated Capacity | 110 Ah/20HR |
| Dimensions | L 331 mm<br>W 173 mm<br>H. 243 mm |
| Weight Approx. | 33 kg(72.75lbs) |
| Capacity 20ºC(68ºF) | 20 HR 5.5 A 110 Ah<br>10 HR 10.0A 100 Ah<br>5 HR 18 A 90 Ah<br>4 HR 87.7 Ah<br>1 HR 80 A 80 Ah |
| Internal resistance | Approx. 4 milliohms |
| Terminal | Flag |
| Charging (Constant-Voltage) | |
| Cycle | Initial charging current less than 40A Voltage 14.40 – 15.0V |
| Float | Voltage 13.50 – 13.80 |
| Capacity affected by Temp(20 HR) | 40 ºC => 102%<br>25 ºC => 100%<br>0 ºC => 95%<br>-15 ºC => 65% |
| Self-Discharge (25 ºC) | Capacity after 3 mth. storage 91%<br>Capacity after 6 mth. storage 82%<br>Capacity after 12 mth. Storage 64% |

The Plate material: Pb-Ca-Sn alloy and oxide of Pb (activity material)
Construction: Positive plate and negative plate, battery case – ABS,
AGM separator, H 2 SO 4 and valve.
Electrolyte concentration: 1.32
Watts per cell @ 4 hour = 44
Run time @ 25 A = 4 hours 16 min
CCA 720A
Discharge rate @ 4 hours = 22A