

# US 185E XC2, US 185 XC2, US 185HC XC2

DATA SHEET Deep Cycle 12 -Volt



**Application:** Wherever Deep Cycle 12-volt batteries are needed.

**Dimensions:** 15-5/8 (397)L x 7-1/16 (179)W x 14-7/8 (378)H

**Type:** Flooded Lead Acid (FLA) non-sealed.

**Case material:** Polypropylene / Heat Sealed

## US 185E XC2, US 185 XC2, US 185HC XC2 - SPECIFICATIONS

| BCI Group Size | Model        | 1-hr Rate | 2-hr Rate | 5-hr Rate | 6-hr Rate | 10-hr Rate | 20-hr Rate | 48-hr Rate | 72-hr Rate | 100-hr Rate | Voltage | Standard Terminal Type | AMP HOURS (20 HR. RATE) | MINUTES @ 75 AMPS | MINUTES @ 56 AMPS | MINUTES @ 25 AMPS | Length          | Width           | Height          | wet Weight Lbs (kg) |
|----------------|--------------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|-------------|---------|------------------------|-------------------------|-------------------|-------------------|-------------------|-----------------|-----------------|-----------------|---------------------|
| 921            | US 185E XC2  | 107       | 122       | 144       | 148       | 163        | 185        | 196        | 201        | 206         | 12      | Offset "S"             | 185                     | 93                | 133               | 355               | 15-5/8<br>(397) | 7-1/16<br>(179) | 14-7/8<br>(378) | 105 (47.8)          |
| 921            | US 185 XC2   | 120       | 135       | 158       | 163       | 178        | 200        | 212        | 217        | 222         | 12      | Offset "S"             | 200                     | 106               | 151               | 398               |                 |                 |                 | 109 (49.4)          |
| 921            | US 185HC XC2 | 130       | 147       | 172       | 178       | 195        | 220        | 233        | 239        | 244         | 12      | Offset "S"             | 220                     | 117               | 167               | 443               |                 |                 |                 | 120 (54.4)          |

### TERMINAL OPTIONS:



### VENT CAP OPTIONS:



### CHARGING INSTRUCTIONS:

Following is the charging recommendation and charging profile using 2 stage chargers for US Battery deep cycle products. \*Equalization and float charge modes are not considered to be one of the stages in a charging profile.

- Bulk Charge** Constant current @~10% of C/20 Ah in amps to 2.45+/-0.05 volts per cell (e.g. 7.35 volts +/-0.15 volts per 6 volt battery)
  - Absorption Charge** Constant voltage (2.45+/-0.05 vpc) to 3% of C/20 Ah in amps then hold for 2-3 hours and terminate charge Charge termination can be by maximum time (2-4 hr) or dV/dt (4 mv/cell per hour)
- (Optional Float Charge)** Constant voltage 2.17 vpc (6.51 volts per 6 volt battery) for unlimited time
  - Equalization Charge** Constant voltage (2.55+/-0.05 vpc) extended for 1-3 hours after normal charge cycle (repeat every 30 days)

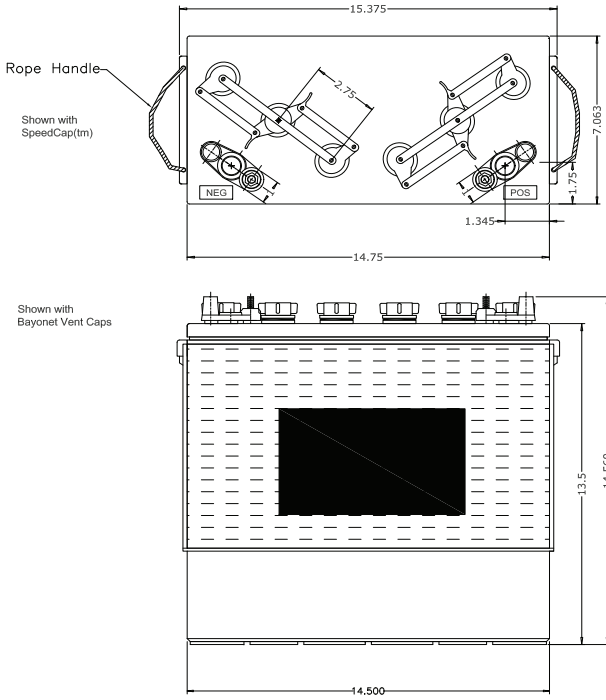
**Notes:** Charge time from full discharge is 9-12 hours.  
Absorption charge time is determined by the battery but will usually be ~3 hours at 2.45 volts per cell.  
Float time is unlimited at 2.17 volts per cell.  
Specific gravity at full charge is 1.270 minimum

**Battery temperature adjustment:** reduce the voltage by 0.028 Volts per cell for every 10°F above 80°F, increase by the same amount for temperatures below 80°F.

Deep cycle batteries need to be equalized periodically. Equalizing is an extended, low current charge performed after the normal charge cycle. This extra charge helps keep all cells in balance. Actively used batteries should be equalized once per month. Manually timed chargers should have the charge time extended approximately 3 hours. Automatically controlled chargers should be unplugged and reconnected after completing a charge.

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### U.S. Battery Recommended Terminal Torque and Connection Hardware

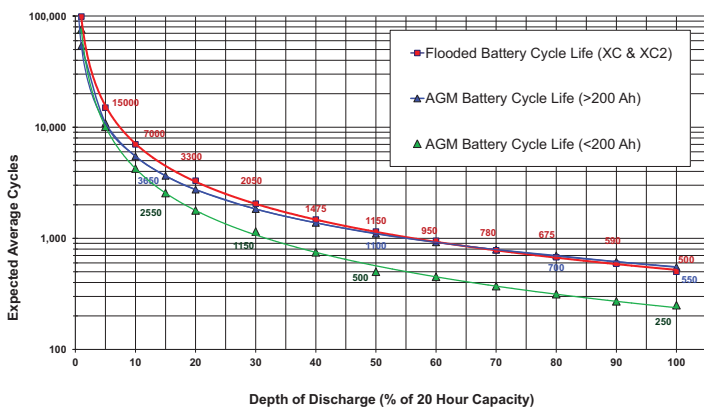
| U.S. Battery Terminal Type | Recommended Torque (in-lb) | Recommended Torque (ft-lb) | Recommended Connection Hardware                   |
|----------------------------|----------------------------|----------------------------|---|
| UTL                        | 95-105                     | 7.9-8.8                    | <sup>1</sup> SS Hexnut with Lock Washer           |
| UT                         | 95-105                     | 7.9-8.8                    | <sup>1</sup> SS Hexnut with Lock Washer           |
| Flat Block                 | 95-105                     | 7.9-8.8                    | <sup>1</sup> SS Hexnut with Lock Washer           |
| Dual                       | 95-105                     | 7.9-8.8                    | <sup>1,6</sup> SS Hexnut with Lock Washer         |
| DC Marine                  | 95-105                     | 7.9-8.8                    | <sup>2</sup> SS Hexnut with Lock Washer           |
| Off-Set "S"                | 100-120                    | 8.3-10                     | <sup>3</sup> Zn or SS Bolt w/Hexnut & Lock Washer |
| Flat Flag                  | 100-120                    | 8.3-10                     | <sup>4</sup> Zn or SS Bolt w/Hexnut & Lock Washer |
| Large "L"                  | 100-120                    | 8.3-10.0                   | <sup>4</sup> Zn or SS Bolt w/Hexnut & Lock Washer |
| Small "L"                  | 100-120                    | 8.3-10.0                   | <sup>4</sup> Zn or SS Bolt w/Hexnut & Lock Washer |
| Bus Lug                    | 120-180                    | 10.0-15.0                  | <sup>5</sup> SS Hexnut with Lock Washer           |
| SAE                        | 50-70                      | 4.2-5.8                    | <sup>6</sup> No Hardware Supplied                 |

Proper connection is to position a lock washer between the nut and the connector (never between the connector and lead terminal) and apply the recommended torque or enough torque to completely compress the lock washer without deforming the lead terminal.

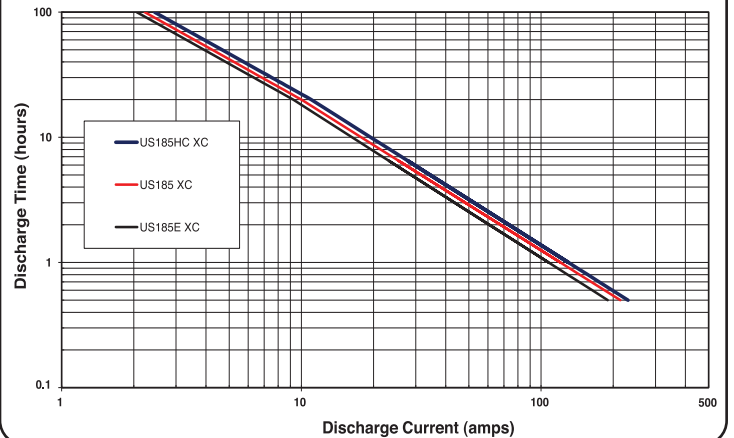
- <sup>1</sup>Stainless Steel Hexnut with Stainless Steel Split-Ring Lock Washer (5/16" Positive & Negative)
- <sup>2</sup>Stainless Steel Hexnut with Stainless Steel Split-Ring Lock Washer (3/8" Positive & 5/16" Negative)
- <sup>3</sup>Square-Head, SS or Zinc-Plated Bolt with SS or Zinc-Plated Hexnut & Split-Ring Lock Washer
- <sup>4</sup>Square-Head or Hex-Head, SS or Zinc-Plated Bolt with SS or Zinc-Plated Hexnut & Split-Ring Lock Washer
- <sup>5</sup>Stainless Steel Hexnut with SS Split-Ring Lock Washer (1/2" Positive or 3/8" Positive & 3/8" Negative)
- <sup>6</sup>No Hardware Supplied - Application Uses SAE Clamp for Positive & Negative Tapered Post

**Note:** The use of flanged nuts and other types of nuts with captive washers or other hardware not listed above is not recommended by US Battery and their use may void the battery warranty.

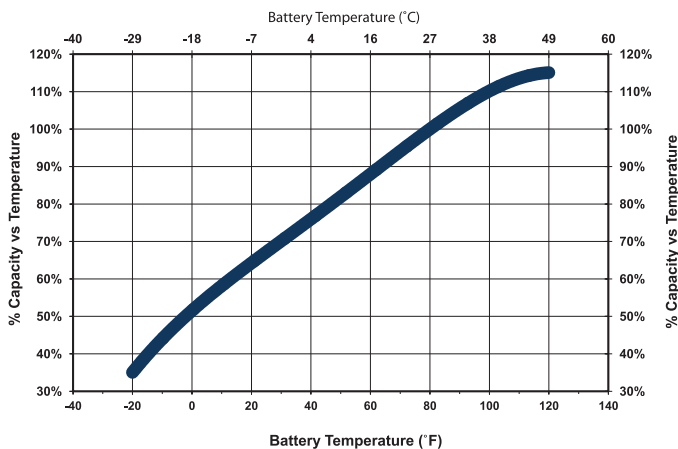
### EXPECTED LIFE CYCLES VS. DOD (XC, XC2 & AGM)



### US 185HC XC2, US 185 XC2, US 185E XC2 - DISCHARGE TIME VS CURRENT @80°F



### BATTERY % CAPACITY VS TEMP



### U.S. Battery Operating Temperature Guidelines

**For charging,** we recommend staying within 0°F to 120°F (-18 to 49°C) to avoid charging frozen batteries at low temperature or going into thermal runaway at high temperature.

**For discharging,** we recommend -20°F to 120°F (-29 to 49°C). Batteries discharged at temperatures below 32°F (0°C) should be recharged immediately to avoid freezing.

**Batteries discharged at temperatures above 120°F (49°C) should be allowed to cool before recharging.**

Extreme temperatures can substantially affect battery performance and charging. Cold reduces battery capacity and retards charging. Heat increases water usage and can result in overcharging. Very high temperatures can cause "thermal run-away" which may lead to an explosion or fire. If extreme temperature is an unavoidable part of an application, consult a battery/charger specialist about ways to deal with the problem.

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