CF-12V9

The rechargeable batteries are lead-lead dioxide systems. The dilute sulfuric acid electrolyte is absorbed by separators and plates and thus immobilized. Should the battery be accidentally overcharged producing hydrogen and oxygen, special one-way valves allow the gases to escape thus avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, therefore, maintenance-free, leak proof and usable in any position.

### Battery Construction

<table>
<thead>
<tr>
<th>Component</th>
<th>Positive plate</th>
<th>Negative plate</th>
<th>Container</th>
<th>Cover</th>
<th>Safety valve</th>
<th>Terminal</th>
<th>Separator</th>
<th>Electrolyte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material</td>
<td>Lead dioxide</td>
<td>Lead</td>
<td>ABS</td>
<td>ABS</td>
<td>Rubber</td>
<td>Copper</td>
<td>Fiberglass</td>
<td>Sulfuric acid</td>
</tr>
</tbody>
</table>

### General Features
- Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium titan alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.

### Performance Characteristics
- **Nominal Voltage**: 12V
- **Number of cell**: 6
- **Design Life**: 3–5 years
- **Nominal Capacity 77°F(25°C)**
  - 20 hour rate (0.45A, 10.5V) ........................................ 9Ah
  - 10 hour rate (0.82A, 10.5V) ........................................ 8.2Ah
  - 5 hour rate (1.54A, 10.5V) ........................................ 7.7Ah
  - 1 hour rate (5.8A, 9.6V) ........................................ 5.8Ah
- **Internal Resistance**
  - Fully Charged battery 77°F(25°C) ................................ 18mOhms
- **Self-Discharge**
  - 3% of capacity declined per month at 20°C (average)
- **Operating Temperature Range**
  - Discharge .......................................................... 20–60°C
  - Charge ............................................................... 10–80°C
  - Storage .............................................................. 20–60°C
- **Max. Discharge Current 77°F(25°C)** ........................... 135A(5s)
- **Short Circuit Current** ........................................... 450A
- **Charge Methods: Constant Voltage Charge 77°F(25°C)**
  - Cycle use .......................................................... 14.5–14.9V
  - Maximum charging current ........................................ 3.8A
  - Temperature compensation ........................................ -30mV/°C
  - Standby use .......................................................... 13.6–13.8V
  - Temperature compensation ........................................ -20mV/°C

### Discharge Constant Current (Amperes at 77°F25°C)

<table>
<thead>
<tr>
<th>End Point</th>
<th>5min</th>
<th>10min</th>
<th>15min</th>
<th>30min</th>
<th>1h</th>
<th>3h</th>
<th>5h</th>
<th>10h</th>
<th>20h</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.60V</td>
<td>33.0</td>
<td>24.2</td>
<td>17.0</td>
<td>9.90</td>
<td>5.80</td>
<td>2.33</td>
<td>1.60</td>
<td>0.87</td>
<td>0.47</td>
</tr>
<tr>
<td>1.65V</td>
<td>32.1</td>
<td>23.6</td>
<td>16.5</td>
<td>9.79</td>
<td>5.75</td>
<td>2.29</td>
<td>1.56</td>
<td>0.86</td>
<td>0.46</td>
</tr>
<tr>
<td>1.70V</td>
<td>30.9</td>
<td>22.9</td>
<td>16.1</td>
<td>9.56</td>
<td>5.71</td>
<td>2.25</td>
<td>1.55</td>
<td>0.84</td>
<td>0.48</td>
</tr>
<tr>
<td>1.75V</td>
<td>30.3</td>
<td>22.1</td>
<td>14.6</td>
<td>8.91</td>
<td>5.66</td>
<td>2.20</td>
<td>1.54</td>
<td>0.82</td>
<td>0.45</td>
</tr>
<tr>
<td>1.80V</td>
<td>29.6</td>
<td>21.0</td>
<td>13.9</td>
<td>8.45</td>
<td>5.51</td>
<td>2.14</td>
<td>1.53</td>
<td>0.82</td>
<td>0.44</td>
</tr>
</tbody>
</table>

### Discharge Constant Power (Watts at 77°F25°C)

<table>
<thead>
<tr>
<th>End Point</th>
<th>5min</th>
<th>10min</th>
<th>15min</th>
<th>30min</th>
<th>1h</th>
<th>2h</th>
<th>3h</th>
<th>5h</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.60V</td>
<td>71.7</td>
<td>44.8</td>
<td>33.6</td>
<td>19.6</td>
<td>14.5</td>
<td>11.5</td>
<td>6.30</td>
<td>3.48</td>
</tr>
<tr>
<td>1.65V</td>
<td>68.3</td>
<td>44.3</td>
<td>33.1</td>
<td>19.1</td>
<td>14.2</td>
<td>11.2</td>
<td>6.23</td>
<td>3.29</td>
</tr>
<tr>
<td>1.70V</td>
<td>64.8</td>
<td>42.9</td>
<td>31.1</td>
<td>18.5</td>
<td>13.7</td>
<td>11.0</td>
<td>6.08</td>
<td>3.20</td>
</tr>
<tr>
<td>1.75V</td>
<td>61.4</td>
<td>41.1</td>
<td>30.2</td>
<td>17.6</td>
<td>12.9</td>
<td>10.7</td>
<td>5.94</td>
<td>3.08</td>
</tr>
<tr>
<td>1.80V</td>
<td>58.0</td>
<td>39.2</td>
<td>28.4</td>
<td>16.6</td>
<td>12.2</td>
<td>10.4</td>
<td>5.77</td>
<td>3.00</td>
</tr>
</tbody>
</table>

(Note): The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.