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></td>
<td>Lead</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 tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.
- Case and cover available in both standard and flame retardant ABS.

### Performance Characteristics
- **Nominal Voltage**: 12V
- **Number of cell**: 6
- **Design Life**: 10 years
- **Nominal Capacity 77°F (25°C)**
  - 10 hour rate (18.0, 10.8V): 180Ah
  - 5 hour rate (32.3A, 10.5V): 161.5Ah
  - 1 hour rate (118A, 9.6V): 118Ah
- **Internal Resistance**
  - Fully Charged battery 77°F (25°C): ≤ 4.0mOhms
- **Self-Discharge**
  - 3% of capacity declined per month at 20°C (average)
- **Operating Temperature Range**
  - Discharge: -20~60°C
  - Charge: -10~60°C
  - Storage: -20~60°C
- **Max. Discharge Current 77°F (25°C)**
  - 1000A (5s)
- **Short Circuit Current**: 2700A
- **Charge Methods: Constant Voltage Charge 77°F (25°C)**
  - Cycle use: 2.40-2.45VPC
  - Maximum charging current: 54A
  - Temperature compensation: -30mV/°C
- **Standby use**: 2.23-2.27VPC
  - Temperature compensation: -20mV/°C

### Dimensions and Weight
- **Length (mm / inch)**: 546 / 21.5
- **Width (mm / inch)**: 125 / 4.92
- **Height (mm / inch)**: 317 / 12.5
- **Total Height (mm / inch)**: 323 / 12.7
- **Approx. Weight (Kg / lbs)**: 58.5 / 129.1
- **Weight deviation**: ± 3%

### Discharge Constant Current (Amperes at 77°F (25°C))

<table>
<thead>
<tr>
<th>End Point Volts/Cell</th>
<th>10min</th>
<th>15min</th>
<th>30min</th>
<th>45min</th>
<th>1h</th>
<th>3h</th>
<th>5h</th>
<th>10h</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.60V</td>
<td>355</td>
<td>300</td>
<td>197</td>
<td>145</td>
<td>118</td>
<td>51.0</td>
<td>33.0</td>
<td>18.4</td>
</tr>
<tr>
<td>1.65V</td>
<td>332</td>
<td>285</td>
<td>192</td>
<td>143</td>
<td>116</td>
<td>50.3</td>
<td>32.8</td>
<td>18.3</td>
</tr>
<tr>
<td>1.70V</td>
<td>308</td>
<td>269</td>
<td>187</td>
<td>140</td>
<td>114</td>
<td>49.5</td>
<td>32.6</td>
<td>18.2</td>
</tr>
<tr>
<td>1.75V</td>
<td>285</td>
<td>254</td>
<td>181</td>
<td>138</td>
<td>111</td>
<td>48.8</td>
<td>32.3</td>
<td>18.1</td>
</tr>
<tr>
<td>1.80V</td>
<td>261</td>
<td>238</td>
<td>176</td>
<td>135</td>
<td>109</td>
<td>48.0</td>
<td>32.1</td>
<td>18.0</td>
</tr>
</tbody>
</table>

### Discharge Constant Power (Watts at 77°F (25°C))

<table>
<thead>
<tr>
<th>End Point Volts/Cell</th>
<th>10min</th>
<th>15min</th>
<th>30min</th>
<th>45min</th>
<th>1h</th>
<th>2h</th>
<th>3h</th>
<th>5h</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.60V</td>
<td>590</td>
<td>525</td>
<td>360</td>
<td>274</td>
<td>225</td>
<td>134</td>
<td>98.0</td>
<td>64.1</td>
</tr>
<tr>
<td>1.65V</td>
<td>566</td>
<td>503</td>
<td>349</td>
<td>268</td>
<td>221</td>
<td>132</td>
<td>97.0</td>
<td>63.8</td>
</tr>
<tr>
<td>1.70V</td>
<td>541</td>
<td>480</td>
<td>339</td>
<td>262</td>
<td>217</td>
<td>130</td>
<td>96.0</td>
<td>63.1</td>
</tr>
<tr>
<td>1.75V</td>
<td>517</td>
<td>458</td>
<td>328</td>
<td>257</td>
<td>212</td>
<td>127</td>
<td>95.0</td>
<td>62.5</td>
</tr>
<tr>
<td>1.80V</td>
<td>492</td>
<td>435</td>
<td>318</td>
<td>251</td>
<td>208</td>
<td>125</td>
<td>94.0</td>
<td>62.0</td>
</tr>
</tbody>
</table>

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values. All data shall be changed without notice, Vision reserves the right to explain and update the information contained hereinto.

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**Discharge characteristic (25°C)**

- Battery voltage (V) vs. Discharge time (h)
- Constant voltage charge characteristic (0.25CA, 25°C)

**Charge characteristic curve**

- Charged Volume vs. Charging Time (hours)
- Charge Voltage vs. Charging Current

**Relationship between charging voltage and temperature**

- Voltage (V/12V) vs. Ambient Temperature (°C)
- Temperature (°C) vs. Capacity (%)

**Self-discharge characteristic**

- Capacity (%) vs. Storage Time (months)

**Life characteristics of standby use**

- Capacity (%) vs. Life (years)
- Testing conditions: floating voltage: 2.27 to 2.30V/Cell, ambient temperature: 25°C (77°F)

**Cycle service life in relation to depth of discharge**

- Capacity (%) vs. Number of cycles (cycles)
- Depth of discharge (D.O.D.)

**Temperature effects on float life**

- Life (years) vs. Temperature (°C)

**Temperature effects on capacity**

- Capacity (%) vs. Temperature (°C)
- 2.30V/Cell

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