1. **Application**

BAE *Secura PVS BLOCK Solar* batteries are the optimal solution for a reliable and robust storage of regenerative energy under extreme conditions in the industrial sector.

The special electrode design with tubular electrodes distinguishes the BAE *Secura PVS BLOCK Solar* batteries leading to high security and reliability as well as high cycle life time.

2. **Technical data (Reference temperature 20 °C)**

<table>
<thead>
<tr>
<th>Type</th>
<th>$U_e$</th>
<th>$C_{1h}$</th>
<th>$C_{10h}$</th>
<th>$C_{20h}$</th>
<th>$C_{22h}$</th>
<th>$C_{50h}$</th>
<th>$C_{100h}$</th>
<th>$C_{150h}$</th>
<th>$R_i$</th>
<th>$I_k$</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Height (H)</th>
<th>Weight dry</th>
<th>Weight filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 V 1 PVS</td>
<td>70</td>
<td>31</td>
<td>56</td>
<td>64</td>
<td>70</td>
<td>71</td>
<td>72</td>
<td>74</td>
<td>16.62</td>
<td>0.75</td>
<td>272</td>
<td>205</td>
<td>385</td>
<td>30.5</td>
<td>43.2</td>
</tr>
<tr>
<td>12 V 2 PVS</td>
<td>140</td>
<td>63</td>
<td>109</td>
<td>125</td>
<td>137</td>
<td>140</td>
<td>144</td>
<td>8.91</td>
<td>1.40</td>
<td>272</td>
<td>205</td>
<td>385</td>
<td>39.1</td>
<td>51.4</td>
<td></td>
</tr>
<tr>
<td>12 V 3 PVS</td>
<td>210</td>
<td>95</td>
<td>167</td>
<td>192</td>
<td>211</td>
<td>215</td>
<td>217</td>
<td>6.27</td>
<td>1.99</td>
<td>380</td>
<td>205</td>
<td>385</td>
<td>53.7</td>
<td>71.4</td>
<td></td>
</tr>
<tr>
<td>6 V 4 PVS</td>
<td>280</td>
<td>127</td>
<td>223</td>
<td>254</td>
<td>282</td>
<td>287</td>
<td>289</td>
<td>295</td>
<td>2.47</td>
<td>2.52</td>
<td>272</td>
<td>205</td>
<td>385</td>
<td>34.8</td>
<td>47.6</td>
</tr>
<tr>
<td>6 V 5 PVS</td>
<td>350</td>
<td>159</td>
<td>279</td>
<td>318</td>
<td>352</td>
<td>359</td>
<td>361</td>
<td>369</td>
<td>2.09</td>
<td>2.98</td>
<td>380</td>
<td>205</td>
<td>385</td>
<td>43.0</td>
<td>61.8</td>
</tr>
<tr>
<td>6 V 6 PVS</td>
<td>420</td>
<td>191</td>
<td>334</td>
<td>382</td>
<td>424</td>
<td>431</td>
<td>434</td>
<td>444</td>
<td>1.82</td>
<td>3.42</td>
<td>380</td>
<td>205</td>
<td>385</td>
<td>49.5</td>
<td>67.5</td>
</tr>
</tbody>
</table>

1. 2) Internal resistance $R_i$ and short circuit current $I_k$ according to IEC 60896-11

Height (H) is the maximum height between container bottom and top of the bolts in assembled condition.

BAE *Secura PVS BLOCK Solar* batteries are also available as dry pre-charged version. They are titled with additional “TG”, e.g. 12 V 3 PVS 210 TG.

All values published in the table correspond to 100% discharge of current depending capacity without voltage drop of connectors. Please consider item 7.

3. **Terminal positions**

Terminals are designed as female poles with brass inlay M10 for flexible insulated copper cables with cross-section 25, 35, 50, 70, 95 or 120 mm² or insulated solid copper connectors with cross-section 90, 150 or 300 mm².
Technical Specification for BAE **Secura PVS BLOCK Solar**

4. Design

- **Positive electrode**
  Tubular-plate with woven polyester gauntlet and solid grids in a corrosion-resistant PbSbSnSe-low antimony alloy
- **Negative electrode**
  Grid-plate in a low antimony alloy with long-life expander material
- **Separation**
  Microporous separator
- **Electrolyte**
  Sulphuric acid with a density of 1.24 kg/l at 20 °C (68 °F)
- **Container**
  High impact, transparent SAN (Styrene acrylonitrile), UL-94 rating: HB
- **Lid**
  High impact, grey coloured SAN (colour may vary slightly from given image), UL-94 rating: HB
- **Plugs**
  Labyrinth plugs for arresting aerosols, BAE ceramic funnel plugs according to DIN 40740 or BAE ceramic plugs are recommended
- **Pole-bushing**
  100 % gas- and electrolyte-tight, sliding, plastic-coated “Panzerpol”
- **Kind of protection**
  IP 25 regarding EN 60529, touch protected according to BGV A3

5. Installation

BAE **Secura PVS BLOCK Solar** batteries are designed for indoor applications. For outdoor applications please contact BAE.

6. Maintenance

- **Every 6 months**
  Check battery voltage, pilot block voltages, temperatures
- **Every 12 months**
  Check connections, record battery voltage, block voltages and temperatures

7. Operational data

- **Depth of discharge (DOD)**
  Max. 80 % (Uₜ = 1.91 V/cell for discharge times > 10 h; 1.80 V/cell for 1 h), deep discharges of more than 80 % DOD have to be avoided
- **Initial charge current**
  Unlimited, the minimal charge current has to be 5 A/100 Ah C₁₀
- **Charge voltage at cyclic operation**
  Restricted from 2.30 V to 2.40 V per cell, operation instruction is to be observed
- **Floating voltage/non cycle voltage**
  2.23 V per cell
- **Adjustment of charge voltage**
  No adjustment necessary if battery temperature is kept between 10 °C and 30 °C (50 °F and 86 °F) in the monthly average, otherwise ΔU/ΔT = -0.003 V/cell per K
- **Recharge to 100 %**
  Within a period of 1 up to 4 weeks
- **Battery temperature**
  -20 °C to 55 °C (-4 °F to 131 °F), recommended temperature range 10 °C to 30 °C (50 °F to 86 °F)
- **Self-discharge**
  Approx. 3 % per month at 20 °C (68 °F)
- **IEC 61427 cycles**
  2,700 (A+B) at 40 °C (104 °F)
- **IEC 60896-11 cycles**
  > 1,200 at 20 °C (68 °F)

8. Number of cycles as function of Depth of discharge

![Graph showing number of cycles as function of Depth of discharge](image)

9. Transport

Batteries are not subject to ADR (road transport), if the conditions of Special Provision 598 (Chapter 3.3) are observed. These cells/batteries are dangerous goods on sea transport. Declaration and packaging must comply with the requirements of IMDG-Codes.

10. Standards

- **Test standards**
  IEC 60896-11, IEC 61427
- **Safety standard, ventilation**
  IEC 62485-2

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