

## Technical Specification for Vented Lead-Acid Batteries (VLA)



### 1. Application

BAE PVS Block solar batteries are low maintenance and used to store electric energy in small solar photovoltaic installations.

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

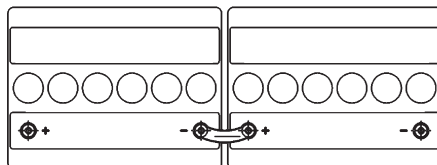
Type	C <sub>1h</sub> Ah	C <sub>10h</sub> Ah	C <sub>20h</sub> Ah	C <sub>72h</sub> Ah	C <sub>100h</sub> Ah	C <sub>120h</sub> Ah	C <sub>240h</sub> Ah	R <sub>i</sub> 1) mΩ	I <sub>k</sub> 2) kA	Length mm	Width mm	Height mm	Weight (dry) kg	Weight (filled) kg
Ue [V per cell]	1.65	1.80	1.80	1.80	1.80	1.80	1.80							
12V 1 PVS 70	32.3	56.2	63.8	72	72.8	73.3	75.1	19.20	0.64	272	205	385	29.5	41
12V 2 PVS 140	62.3	108	122	137	139	139	144	9.60	1.28	272	205	385	38	47.6
12V 3 PVS 210	96.9	168	191	216	218	219	225	6.40	1.92	380	205	385	51	69.4
6V 4 PVS 280	129	225	254	288	291	292	300	2.40	2.56	272	205	385	33	46.5
6V 5 PVS 350	161	281	318	360	364	366	374	1.92	3.20	380	205	385	41.7	60.4
6V 6 PVS 420	193	337	382	432	437	440	451	1.60	3.84	380	205	385	48.5	66.5

BAE SECURA PVS BLOCK solar batteries as dry charged version are marked with "TG". E.g. 12V 3 PVS 210 TG

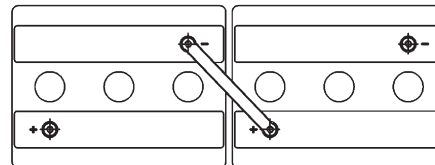
1) R<sub>i</sub> and 2) I<sub>k</sub> values according to IEC 60896-11.

All values given in the table correspond to 100 % DOD. Please consider item 7.

### 3. Terminal position



12V 1 PVS 70 to 12V 3 PVS 210



6V 4 PVS 280 to 6V 6 PVS 420

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 mm<sup>2</sup> or insulated solid copper connectors with cross-section 90, 150 or 300 mm<sup>2</sup>.

# Technical Specification of BAE *SECURA PVS BLOCK solar*

## 4. Design

positive electrode	tubular - plate with a polyester gauntlet and solid grids in a corrosion-resistant PbSb1.6SnSe - 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
container	high impact, transparent SAN (Styrol-Acrylic-Nitrile), UL-94 rating: HB
lid	high impact, SAN in dark grey colour, UL-94 rating: HB
plugs	labyrinth plugs for arresting aerosol, optional ceramic plugs or ceramic funnel plugs according to DIN 40740
pole-bushing	100% gas- and electrolyte-tight, sliding, plastic-coated "Panzerpol"
kind of protection	IP 25 regarding DIN 40050, touch protected according to VBG 4

## 5. Installation

BAE SECURA PVS BLOCK solar batteries are designed for indoor applications.

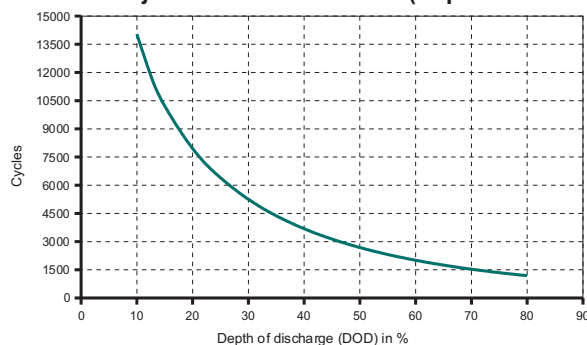
## 6. Maintenance

every 6 months	check battery voltage as well as temperature
every 12 months	check of mechanical and electrical connections, record battery cell voltage as well as temperature
every 3 years	average water-refilling interval (depending on utilization and ambient temperature)

## 7. Operational data

depth of discharge (DOD)	max. 80 % (Ue = 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
charge current	may vary from 5 x I <sub>10</sub> down to 0.01 x I <sub>10</sub>
floating voltage	2.23 V per cell
charge voltage at cyclic operation	
• DOD per day < 20 % C <sub>10</sub>	2.30 V – 2.35 V per cell
• DOD per day > 20 % C <sub>10</sub>	2.35 V – 2.40 V per cell
	To prevent electrolyte stratification, an equalizing charge must be carried out according to BAE operating instructions at DOD > 30 % C <sub>10</sub> per day or BAE batteries with electrolyte circulation have to be used.
adjustment of charge voltage	no adjustment necessary if battery temperature is between 10 °C and 30 °C in the monthly average, otherwise $\Delta U/\Delta T = -0.003 \text{ Vpc/K}$
recharge to 100 %	within a period of one up to 4 weeks
IEC 61427 cycles	2700 (A+B)
operational temperature	-20 °C to 55 °C, recommended temperature range 10 °C to 30 °C
self-discharge	approx. 3 % per month at 20°C

## 8. Number of cycles as function of DOD (Depth of discharge)



## 9. Transport

Batteries are not subject to ADR (road transport), if the conditions of special rule 598 (chapter 3.3) are observed.

## 10. Standards

Test standard	IEC 60896-11, IEC 61427
Safety standard, ventilation	EN 50272-2



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