BAE *SECURA PVS CELL solar*

Technical Specification for Vented Lead-Acid Batteries (VLA)

1. Application

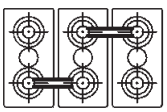
BAE PVS cell solar batteries are low maintenance and used to store electric energy in medium and large solar photovoltaic installations.

2. Technical data (Reference temperature 20°C)

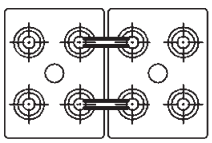
Type	$C_{1\,h}$ Ah	$C_{10\,h}$ Ah	$C_{20\,h}$ Ah	$C_{72\,h}$ Ah	$C_{100\,h}$ Ah	$C_{120\,h}$ Ah	$C_{240\,h}$ Ah	R_i1) mΩ	I_k 2) kA	Length mm	Width mm	Height mm	Weight (dry) kg	Weight (filled) kg
Ue [V per cell]	1.65	1.80	1.80	1.80	1.80	1.80	1.80							
4 PVS 280	98.9	201	232	278	285	286	295	0.95	2.16	105	208	420	12.5	17
5 PVS 350	126	257	298	358	366	369	379	0.76	2.7	126	208	420	15.2	21
6 PVS 420	154	317	368	444	454	458	470	0.63	3.24	147	208	420	17.8	25
5 PVS 550	197	371	414	475	488	496	528	0.7	2.9	126	208	535	20	27
6 PVS 660	245	468	522	604	620	628	669	0.58	3.48	147	208	535	22.8	32
7 PVS 770	284	543	606	700	718	729	777	0.5	4.06	168	208	535	26.4	37
6 PVS 900	329	670	752	900	933	944	976	0.47	4.32	147	208	710	32.7	46
8 PVS 1200	449	932	1 044	1 260	1 300	1 308	1 365	0.35	5.76	215	193	710	44.6	64
10 PVS 1500	542	1 090	1 226	1 468	1 510	1 536	1 588	0.28	7.2	215	235	710	54.3	75.9
12 PVS 1800	655	1 320	1 490	1 792	1 840	1 860	1 934	0.23	8.64	215	277	710	63.4	89.7
12 PVS 2280	777	1 670	1 866	2 181	2 250	2 280	2 397	0.22	9.18	215	277	855	75.4	110
16 PVS 3040	1 013	2 130	2 380	2 779	2 860	2 904	3 024	0.17	12.24	215	400	815	117.9	150
20 PVS 3800	1 295	2 780	3 100	3 643	3 750	3 804	3 984	0.14	15.3	215	490	815	127	187
22 PVS 4180	1 425	3 060	3 420	4 003	4 130	4 188	4 392	0.12	16.83	215	580	815	141	205
24 PVS 4560	1 586	3 470	3 880	4 564	4 710	4 776	5 016	0.11	18.36	215	580	815	146	218.8
26 PVS 4940	1 684	3 620	4 040	4 737	4 880	4 956	5 184	0.1	19.97	215	580	815	156	231

BAE SECURA PVS CELL solar batteries as dry charged version are marked with "TG". E.g. 4 PVS 280 TG.
1) R_i and 2) I_k values according to IEC 60896-11
All values given in the table correspond to 100 % DOD. Please consider item 7.

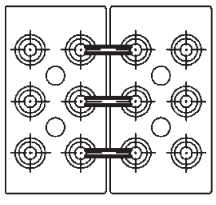
3. Terminal position



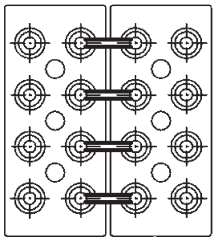
4 PVS 280 to 6 PVS 900



8 PVS 1200 to 12 PVS 2280



16 PVS 3040



20 PVS 3800 to 26 PVS 4940

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 of BAE *SECURA PVS CELL 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 CELL solar batteries are designed for indoor applications.

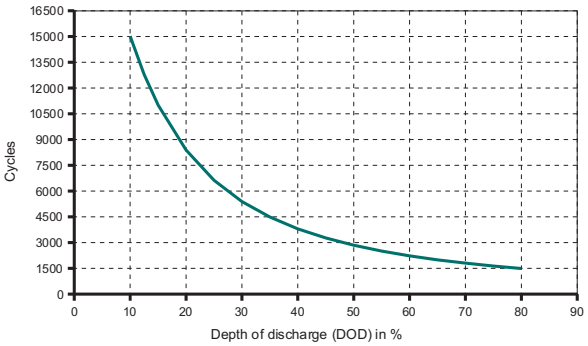
6. Maintenance

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; 1.74 V/cell for 1 h) deep discharges of more than 80 % DOD have to be avoided
charge current	may vary from 5 x I_{10} down to 0.01 x I_{10}
floating voltage	2.23 V per cell
charge voltage at cyclic operation	
• DOD per day < 20 % C_{10}	2.30 V – 2.35 V per cell
• DOD per day > 20 % C_{10}	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_{10} 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 Vpc/K
recharge to 100 %	within a period of one up to 4 weeks
IEC 61427 cycles	3150 (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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04/2010 4805220