

BAE SECURA PVS solar

Technical Specification for Vented Lead-Acid Batteries (VLA)

1. Application

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

Due to the robust tubular plate design BAE PVS batteries are excellent suited for highest requirements regarding cycling ability and long life-time.



2. Technical data (Reference temperature 20 °C)

Type	C_{1h} Ah	C_{10h} Ah	C_{20h} Ah	C_{72h} Ah	C_{100h} Ah	C_{120h} Ah	C_{240h} Ah	R_i 1) mΩ	I_k 2) kA	Length (L) mm	Width (W) mm	Height (H) mm	Weight dry kg	Weight filled kg
U_e V/cell	1.67	1.80	1.80	1.80	1.80	1.80	1.80							
2 PVS 140	63	111	127	141	143	144	148	1.52	1.37	105	208	420	9.1	14.5
3 PVS 210	95	167	191	211	215	217	222	1.06	1.96	105	208	420	11.2	16.4
4 PVS 280	127	223	254	282	287	289	295	0.84	2.46	105	208	420	12.8	18.0
5 PVS 350	159	279	318	352	359	361	369	0.70	2.98	126	208	420	15.3	21.7
6 PVS 420	191	334	382	424	431	434	444	0.60	3.47	147	208	420	18.1	25.7
5 PVS 550	223	389	432	486	496	500	513	0.57	3.61	126	208	535	20.0	28.8
6 PVS 660	267	467	518	583	595	601	616	0.49	4.18	147	208	535	23.5	34.0
7 PVS 770	310	544	604	681	694	700	720	0.44	4.69	168	208	535	26.8	39.1
6 PVS 900	352	665	748	856	877	888	916	0.47	4.41	147	208	710	33.0	47.4
7 PVS 1050	415	777	872	993	1,020	1,033	1,065	0.36	5.66	215	193	710	42.1	61.5
8 PVS 1200	473	886	996	1,137	1,160	1,178	1,216	0.32	6.36	215	193	710	46.6	65.4
9 PVS 1350	522	992	1,116	1,274	1,300	1,320	1,365	0.33	6.20	215	235	710	51.4	75.4
10 PVS 1500	585	1,100	1,240	1,418	1,450	1,464	1,516	0.28	7.25	215	235	710	56.0	79.4
11 PVS 1650	635	1,210	1,362	1,555	1,590	1,608	1,665	0.28	7.36	215	277	710	61.0	89.6
12 PVS 1800	698	1,320	1,486	1,699	1,740	1,752	1,816	0.24	8.41	215	277	710	65.4	93.4
11 PVS 2090	790	1,470	1,636	1,836	1,870	1,884	1,941	0.24	8.38	215	277	855	72.7	105.9
12 PVS 2280	869	1,600	1,784	2,001	2,040	2,052	2,116	0.22	9.48	215	277	855	77.4	110.4
13 PVS 2470	978	1,740	1,938	2,174	2,210	2,232	2,292	0.16	13.03	215	400	815	90.8	137.8
14 PVS 2660	1,051	1,880	2,080	2,332	2,380	2,400	2,448	0.15	13.82	215	400	815	95.3	142.4
15 PVS 2850	1,123	2,010	2,220	2,498	2,550	2,568	2,640	0.14	14.43	215	400	815	100.2	146.9
16 PVS 3040	1,195	2,140	2,380	2,664	2,710	2,736	2,808	0.13	15.20	215	400	815	105.4	151.6
17 PVS 3230	1,280	2,290	2,540	2,858	2,910	2,940	3,000	0.12	16.91	215	490	815	117.7	175.1
18 PVS 3420	1,352	2,420	2,680	3,024	3,080	3,108	3,192	0.11	17.55	215	490	815	121.9	179.1
19 PVS 3610	1,425	2,560	2,840	3,189	3,250	3,276	3,360	0.11	18.36	215	490	815	126.8	183.6
20 PVS 3800	1,496	2,690	2,980	3,355	3,420	3,444	3,528	0.11	18.92	215	490	815	132.0	188.3
22 PVS 4180	1,635	2,950	3,280	3,686	3,750	3,780	3,888	0.10	19.92	215	580	815	145.4	213.9
24 PVS 4560	1,777	3,220	3,560	4,010	4,090	4,128	4,224	0.09	21.26	215	580	815	155.2	223.0
26 PVS 4940	1,917	3,480	3,860	4,341	4,420	4,464	4,584	0.09	22.49	215	580	815	165.0	232.0

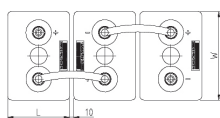
1, 2) Internal resistance R_i and short circuit current I_k according to IEC 60896-11

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

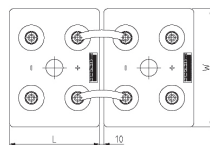
BAE SECURA PVS solar batteries are also available as dry pre-charged version. They are titled with additional "TG", e.g. 4 PVS 280 TG.

All values given in the table correspond to 100 % DOD without voltage drop of connectors. Please consider item 7.

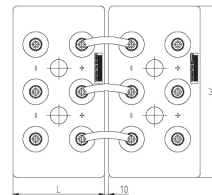
3. Terminal positions



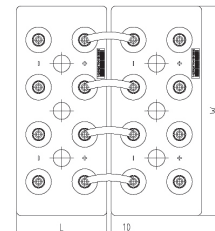
2 PVS 140 to 6 PVS 900



7 PVS 1050 to 12 PVS 2280



13 PVS 2470 to 16 PVS 3040



17 PVS 3230 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 for BAE *SECURA PVS solar*



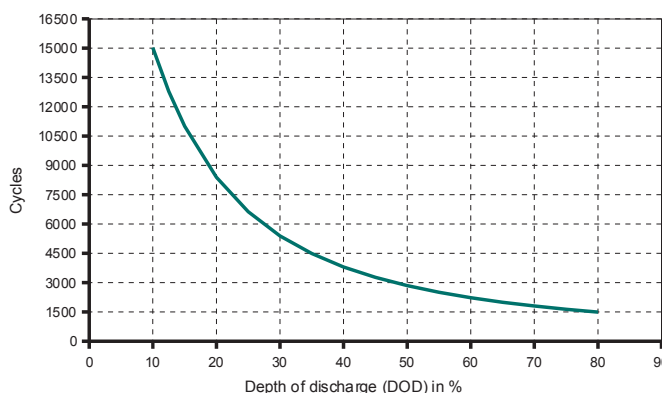
- 4. Design**
 - Positive electrode tubular-plate with a woven polyester gauntlet and solid grids in a corrosion-resistant PbSbSnSe-low antimony alloy
 - Negative electrode grid-plate in a low antimony alloy with long-life expander material
 - Separation microporous separator
 - Electrolyte sulphuric acid with a density of 1.24 kg/l at 20 °C (68 °F)
 - Container high impact, transparent SAN (Styrol-Acrylic-Nitrile), UL-94 rating: HB
 - Lid high impact SAN in dark grey colour (colour may vary slightly from given image), UL-94 rating: HB
 - Plugs labyrinth plugs for arresting aerosols, 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 EN 60529, touch protected according to VBG 4

5. Installation
 BAE *SECURA PVS solar* batteries are designed for indoor applications. For outdoor applications please contact BAE.

- 6. Maintenance**
 - Every 6 months check battery voltage, pilot cell voltages, temperatures
 - Every 12 months check connections, record battery voltage, cell voltages and temperatures
 - Every 3 years average water-refilling interval (depending on utilization and ambient temperature)

- 7. Operational data**
 - Depth of discharge (DOD) max. 80 % ($U_e = 1.91$ 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
 unlimited, the minimal charge current has to be 5 A/100 Ah C_{10}
 - Initial charge current (I or bulk phase) restricted from 2.30 V to 2.40 V per cell, operating instruction is to be observed
 - Charge voltage at cyclic operation 2.23 V/cell
 - Float voltage/non cyclic voltage no adjustment necessary if battery temperature is between 10 °C and 30 °C (50 °F and 86 °F) in the monthly average, otherwise $\Delta U/\Delta T = -0.003$ V/cell per K
 - Adjustment of charge voltage within a period of 1 up to 4 weeks
 - Recharge to 100 % 3,150 (A+B) at 40 °C (104 °F)
 - IEC 61427 cycles -20 °C to 55 °C (-4 °F to 131 °F), recommended temperature range 10 °C to 30 °C (50 °F to 86 °F)
 - Battery temperature approx. 3 % per month at 20 °C (68 °F)
 - Self-discharge

8. Number of cycles as function of Depth of discharge



- 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 EN 50272-2



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12/2012_4805220 Technical details may be subject to alterations.

