



Technical Specification for Valve Regulated Lead-Acid Batteries (VRLA)



1. Application

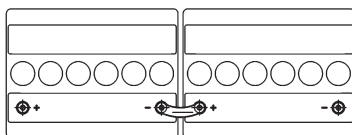
BAE PVV Block solar batteries are maintenance-free and used to store electric energy in small solar photovoltaic installations.

2. Technical data (Reference temperature 20°C)

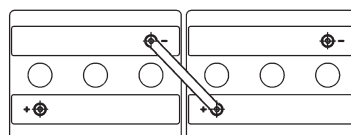
Type	C _{1 h} Ah	C _{10 h} Ah	C _{20 h} Ah	C _{72 h} Ah	C _{100 h} Ah	C _{120 h} Ah	C _{240 h} Ah	R _i 1) mΩ	I _k 2) kA	Length mm	Width mm	Height mm	Weight kg
U _e (100 %)/V _{pc}	1.65	1.80	1.80	1.80	1.80	1.80	1.80						
U _e (80 %)/V _{pc}	1.80	1.91	1.91	1.91	1.91	1.91	1.91						
12V 1 PVV 70	37.6	57.4	61.8	70.0	71.8	72.7	75.1	21.60	0.58	272	205	385	43.0
12V 2 PVV 140	72.4	110	118	133	137	139	144	10.80	1.15	272	205	385	52.0
12V 3 PVV 210	109	166	178	202	206	210	216	7.20	1.73	380	205	385	74.2
6V 4 PVV 280	150	229	248	280	287	290	300	2.70	2.30	272	205	385	51.0
6V 5 PVV 350	188	287	308	349	359	363	374	2.16	2.88	380	205	385	65.0
6V 6 PVV 420	226	344	370	420	431	435	451	1.80	3.45	380	205	385	73.8
2V 12 PVV 840	451	688	742	842	862	872	900	0.30	6.90	272	205	385	51.0
2V 15 PVV 1050	564	860	926	1,051	1,080	1,090	1,125	0.24	8.63	380	205	385	65.0
2V 18 PVV 1260	677	1,030	1,112	1,260	1,290	1,308	1,351	0.20	10.35	380	205	385	73.8

1) R_i and 2) I_k values according to IEC 60896-21

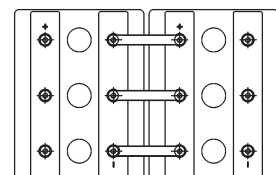
3. Terminal position



12V 1 PVV 70 to 12V 3 PVV 210



6V 4 PVV 280 to 6V 6 PVV 420



2V 12 PVV 840 to 2V 18 PVV 1260

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

Technical Specification of BAE *SECURA PVV BLOCK solar*

4. Design

positive electrode	tubular - plate with a polyester gauntlet and solid grids in a corrosion-resistant PbCaSn - alloy
negative electrode	grid - plate in PbCaSn alloy with long life expander material
separation	Microporous separator
electrolyte	sulphuric acid with a density of 1.24 kg/l, fixed as GEL by fumed silica
container and lid	high impact, SAN (Styrol-Acrylic-Nitrile), grey coloured, UL-94 rating: HB, on request also in UL-94 rating: V-0
valve	one valve per cell with flame arrestor, opening pressure approx. 120 mbar
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 PVV BLOCK solar batteries are designed for indoor applications.

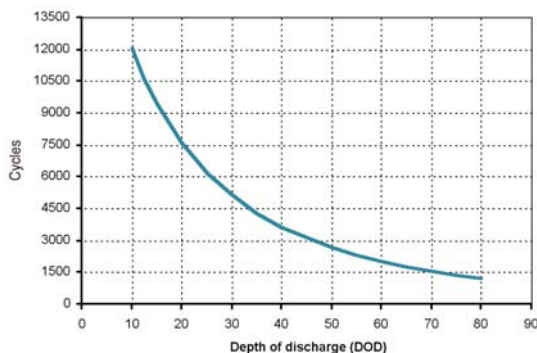
6. Maintenance

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

7. Operational data

depth of discharge (DOD)	restricted to 80 % according to final voltage per cell and discharge time as per Item 2, deep discharges of more than 80 % DOD have to be avoided
charge current	may vary from $5 \times I_{10}$ down to $0.01 \times I_{10}$
charge voltage	restricted from 2.30 V to 2.40 V per cell
• DOD per day < 40 % C_{10}	2.30 V – 2.35 V per cell
• DOD per day > 40 % - 60 % C_{10}	2.35 V – 2.40 V per cell
adjustment of charge voltage	no adjustment necessary if battery temperature is between 10 °C and 45 °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	1950 (A+B)
operational temperature	-20 °C to 45 °C, recommended temperature range 10 °C to 30 °C
self-discharge	approx. 2 % 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 60896-21, IEC 61427
Safety standard, ventilation	EN 50272-2



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