

Technical Specification for Stationary VRLA-GEL – Block Batteries

1. Application

The BAE SECURA PVV Block SOLAR batteries are the ideal solution for a reliable and robust storage of regenerative energy under extreme conditions in the industrial sector. In addition, they do not require any refilling of water during their lifetime. The additional option for operation of the batteries in horizontal position allows compact installations especially in home solar systems.

The special tubular electrode design and the fixed gel electrolyte distinguishes the BAE SECURA PVV Block SOLAR batteries leading to high reliability as well as high cycle lifetime.

Application Uses:

- Renewable Energy applications
- Photovoltaic power generation
- Stand-alone photovoltaic systems
- Hybrid applications
- Outdoor enclosures



Similar to the illustration

UL file no. MH64832

2. Types, capacities, dimensions, mass

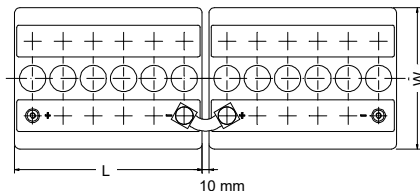
Type	C _{1h} 20°C	C _{10h} 20°C	C _{20h} 20°C	C _{72h} 20°C	C _{100h} 20°C	C _{120h} 20°C	C _{240h} 20°C	R _i 1)	I _k 2)	Length (L)	Width (W)	Height (H)	Weight filled	Lead mass
U _e V/cell	Ah	Ah	Ah	Ah	Ah	Ah	Ah	mΩ	kA	inch	inch	inch	lbs	lbs
12V 1 PVV 70	35	60	67	76	78	79	82	21.60	0.58	10.71	8.07	15.16	89.4	59.1
12V 2 PVV 140	68	110	120	133	137	138	142	10.80	1.15	10.71	8.07	15.16	109.8	80.9
12V 3 PVV 210	103	167	182	203	208	210	216	7.20	1.73	14.96	8.07	15.16	166.4	117.2
6V 4 PVV 280	280	224	244	273	279	282	290	2.70	2.30	10.71	8.07	15.16	112.4	77.2
6V 5 PVV 350	350	281	306	343	350	354	364	2.16	2.88	14.96	8.07	15.16	145.6	95.3
6V 6 PVV 420	420	337	368	412	421	424	439	1.80	3.45	14.96	8.07	15.16	161.6	113.9

1, 2) Internal resistance R_i and short circuit current I_k according to IEC 60896-21; All data is subject to change.

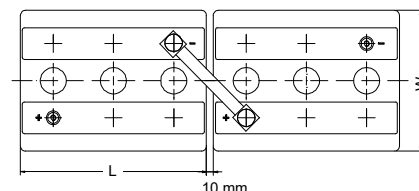
Height (H) is the maximum distance between container bottom and top of the bolts in assembled condition.

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



12V 1 PVV 70 to 12V 3 PVV 210



6V 4 PVV 280 to 6V 6 PVV 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 mm² or insulated solid copper connectors with cross-section 90, 150 or 300 mm².

Technical Specification for 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	Round-grid flat plate in a PbCaSn alloy with long-life expander material
Separation	Microporous separator
Electrolyte	Sulphuric acid with a density of 1.24 kg/l (20°C), fixed as a GEL by fumed silica
Container and lid	High impact SAN (Styrol-Acrylic-Nitrile), grey coloured, UL94-HB rating. Alternative container and lid in ABS (Acrylonitrile-Butadiene-Styrene), UL94-V0
Valve	Valve with flame arrestor, opening pressure approx. 120 mbar
Pole - bushing	100% gas and electrolyte tight, sliding, injection moulded "Panzerpol"
Kind of pole	M10 brass insertion
Inter-tier connectors	Flexible insulated copper cables
Connector screw	M10 stainless steel with insulated cap
Kind of protection	IP 25 regarding EN 60529, touch protected according BGV A3h.
Horizontal operation	Please use BAE special type PVV "horizontal".

5. Installation

BAE *SECURA PVV BLOCK SOLAR* batteries are designed for indoor applications. For outdoor applications an appropriately designed enclosure is to be used, please contact BAE.

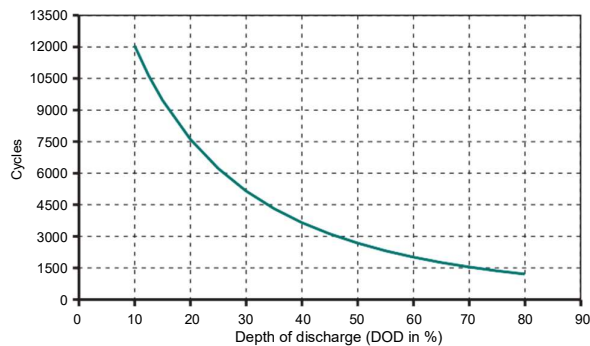
6. Maintenance

every 6 months	Check and record battery voltage, pilot block voltages and temperatures
every 12 months	Check connections, record battery voltages, block voltages and temperatures

7. Operational data

Depth of discharge (DOD)	Max. 80 % (U _e = 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 (I or bulk phase)	Unlimited, the minimal charge current has to be 1.5 A/100 Ah C ₁₀
Charge voltage at cyclic operation	Restricted from 2.30 V to 2.40 V per cell, operating instruction is to be observed
Floating voltage/non-cyclic voltage	2.25 V per cell
Adjustment of charge voltage	No adjustment necessary if battery temperature is kept between 10°C and 45°C (50°F and 113°F) in the monthly average, ΔU/ΔT = -0.003 V/cell per K below 10°C (50°F)
Recharge to 100 %	Within a period of 1 up to 4 weeks
Battery temperature	-20°C to 45°C (-4°F to 113°F), recommended temperature range 10°C to 30°C (50°F to 86°F)
Self-discharge	Approx. 2 % per month at 20°C (68°F)
IEC 61427 cycles	2,100 (A+B) at 40°C (104°F)
IEC 60896-21 cycles	>1,500 at 20°C (68°F)

8. Number of cycles as function of Depth of Discharge



9. Standards and Transport

Tests according	IEC 60896-21, IEC 61427
Safety standard, ventilation	IEC 62485-2
Transport	Subject to DOT Regulations – See SDS for details
UL Safety Recognition	UL 1989 Recognized, UL File No. MH64832

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