BAE *SECURA OPzV BLOCK*

Technical Specification for Stationary VRLA-GEL-Block Batteries

1. Application

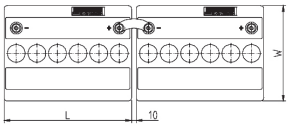
BAE *SECURA OPzV BLOCK* batteries belong to the highest EUROBAT classification for maintenance-free lead-acid batteries: >12 years long life.
In applications with high requirements of operational safety and autonomy times of 1 h to more than 10 h, the BAE *SECURA OPzV BLOCKs* are the right choice. They are used as stand-by power sources in telecommunications, in microwave radio systems, emergency lighting and other equipments.

2. Types, capacities, dimensions, weights

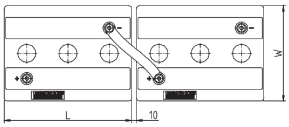
Type	$C_{10\,h}$ 20 °C Ah	$C_{5\,h}$ 20 °C Ah	$C_{3\,h}$ 20 °C Ah	$C_{1\,h}$ 20 °C Ah	$C_{8\,h}$ 25 °C Ah	R_i 1) mΩ	I_k 2) kA	Length (L) mm	Width (W) mm	Height (H) mm	Weight kg
U_e V/cell	1.80	1.77	1.75	1.67	1.75						
12 V 1 OPzV 50	60	53	48	35	60	17.47	0.73	272	205	385	43.0
12 V 2 OPzV 100	110	99	89	68	109	9.55	1.34	272	205	385	52.0
12 V 3 OPzV 150	167	149	135	103	166	6.74	1.91	380	205	385	74.2
6 V 4 OPzV 200	224	200	181	137	222	2.66	2.42	272	205	385	51.0
6 V 5 OPzV 250	281	251	227	172	279	2.24	2.87	380	205	385	65.0
6 V 6 OPzV 300	337	301	273	207	335	1.94	3.31	380	205	385	73.8
2 V 12 OPzV 600	674	600	543	413	668	0.29	7.33	205	272	385	51.0
2 V 15 OPzV 750	844	750	681	517	832	0.24	8.81	205	380	385	65.0
2 V 18 OPzV 900	1,010	905	819	622	1,000	0.21	10.18	205	380	385	73.8

1, 2) Internal resistance R_i and short circuit current I_k according to IEC 60896-21
Height (H) is the maximum height between container bottom and top of the bolts in assembled condition.
All values given in the table correspond to 100 % DOD without voltage drop of connectors. Please consider item 6.

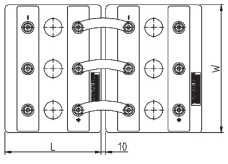
3. Terminal positions



12 V 1 OPzV 50 to 12 V 3 OPzV 150



6 V 4 OPzV 200 to 6 V 6 OPzV 300



2 V 12 OPzV 600 to 2 V 18 OPzV 900

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4. Design

Positive electrode	tubular-plate with woven 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 (colour may vary slightly from given image), UL-94 rating: HB on request also in ABS (Acrylonitrile-Butadiene-Styrene), UL-94 rating: V-0
Blocks with blind cells	4 V, 6 V, 8 V, 10 V
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 pole	M10 brass insertion
Connectors	flexible insulated copper cables with cross-section of 25, 35, 50, 70, 95 or 120 mm², on request: insulated solid copper connectors with cross-section 90, 150 or 300 mm²
Connector screw	M10, steel, insulated, with measuring point
Kind of protection	IP 25 regarding EN 60529, touch protected according to VBG 4
Horizontal operation	Please use BAE special type OPzV “horizontal”. The construction and production of this type is adapted to the horizontal operation.

5. Charging

IU-characteristic	I_{max} without limitation U = 2.25 V/cell ± 1 %, between 10 °C and 45 °C (50 °F and 113 °F) in the monthly average, $\Delta U/\Delta T$ = -0.003 V/cell per K below 10 °C (50 °F)
Float current	20 - 30 mA/100 Ah C_{10}
Boost charge	U = 2.33 to 2.40 V/cell, time limited
Charging time up to 92 %	6 h with 1.5 x I_{10} initial current, 2.25 V/cell, 50 % C_{10} discharged

6. Discharge characteristics

Reference temperature	20 °C (68 °F)
Initial capacity	according to IEC 60896-21: 95 % at the 1st cycle, 100 % at the 5th cycle
Depth of discharge (DOD)	normally up to 80 %
Deep discharges	more than 80 % DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

7. Maintenance

Every 6 months	check battery voltage, pilot block voltages, temperatures
Every 12 months	record battery and block voltages and temperatures

8. Operational data

Classification according to EUROBAT	12 years and longer - long life
Service life	18 years in stand-by operation, float at 20 °C to 25 °C (68 °F to 77 °F)
Maintenance-free	no topping up during life
IEC 60896-21 cycles	>1,500
Self-discharge	approx. 2 % per month at 20 °C (68 °F)
Battery temperature	-20 °C to 45 °C (-4 °F to 113 °F) recommended 10 °C to 30 °C (50 °F to 86 °F) short time 45 °C to 55 °C (113 °F to 131 °F)
Deep discharge recovery	very good
Standard	DIN 40744
Tests according to	IEC 60896-21, -22
Safety standard, ventilation	EN 50272-2, Ventilation requirements are reduced to 20 % compared to those for vented batteries of the same capacity.
Transport	Batteries are not subject to ADR (road transport), if the conditions of Special Provisions 598 and 238 (Chapter 3.3) are observed. BAE cells/batteries are conform to the IMDG-Code, therefore these products are no dangerous goods on sea transport.

12/2012 4804035 Technical details may be subject to alterations.

BAE Batterien GmbH
Wilhelminenhofstraße 69/70
12459 Berlin
Germany

Tel.: +49 (0)30 53001-661
Fax: +49 (0)30 53001-667
E-Mail: info@bae-berlin.de
www.bae-berlin.de

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