BAE *SECURA OPzS BLOCK*

Technical Specification for Stationary VLA-Block Batteries

1. Application

BAE *SECURA OPzS BLOCK* batteries belong to the most enduring lead-acid batteries. They are suitable for stand-by operations as well as for capacitive loads. They perfectly meet requirements for autonomy times between 30 min and more than 10 h.

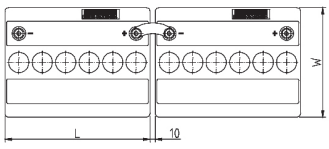
Fields:
Telecommunications
Emergency lighting
Microwave radio systems
Power generation plants

2. Types, capacities, dimensions, weights

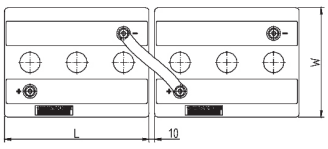
Type	$C_{10\,h}$ 20 °C Ah	$C_{5\,h}$ 20 °C Ah	$C_{3\,h}$ 20 °C Ah	$C_{1\,h}$ 20 °C Ah	$C_{8\,h}$ 25 °C Ah	R_i 1) mΩ	I_k 2) kA	Length (L) mm	Width (W) mm	Height (H) mm	Weight dry kg	Weight filled kg
U_e V/cell	1.80	1.77	1.75	1.67	1.75							
12 V 1 OPzS 50	56	48	42	31	55	16.62	0.75	272	205	385	29.5	41.0
12 V 2 OPzS 100	109	95	84	63	108	8.91	1.40	272	205	385	38.0	47.6
12 V 3 OPzS 150	167	145	129	95	165	6.27	1.99	380	205	385	51.0	69.4
6 V 4 OPzS 200	223	194	171	127	220	2.47	2.52	272	205	385	33.0	46.5
6 V 5 OPzS 250	279	242	214	159	276	2.09	2.98	380	205	385	41.7	60.4
6 V 6 OPzS 300	334	290	257	191	332	1.82	3.42	380	205	385	48.5	66.5

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 OPzS* blocks are also available as dry pre-charged version. They are titled with additional "TG", e.g. 12 V 3 OPzS 150 TG.
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 OPzS 50 to 12 V 3 OPzS 150



6 V 4 OPzS 200 to 6 V 6 OPzS 300

BAE
Energy from Batteries

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4. Design

Positive electrode	tubular-plate with woven polyester gauntlet and solid grids in a corrosion-resistant PbSbSnSe-low antimony alloy
Negative electrode	grid-plate in low antimony alloy with long-life expander material
Separation	microporous separator
Electrolyte	sulphuric acid with a density of 1.24 kg/l
Container	high impact, transparent SAN (Styrol-Acrylic-Nitrile), UL-94 rating: HB
Lid	high impact SAN in grey colour (colour may vary slightly from given image), UL-94 rating: HB
Blocks with blind cells	4 V, 6 V, 8 V, 10 V
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 pole	M10 brass insertion
Connectors	flexible insulated copper cables with cross-section of 25, 35, 50, 70, 95 or 120 mm^2; on request: insulated solid copper connectors with cross-section 90, 150 or 300 mm^2
Connector screw	M10, steel, insulated, with measuring point
Kind of protection	IP 25 regarding EN 60529, touch protected according to VBG 4

5. Charging

IU-characteristic	I_{max} without limitation U = 2.23 V/cell ± 1 %, 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
Float current	approx. 15 mA/100 Ah C_{10}, increasing to approx. 30 mA/100 Ah C_{10} at the end of service life
Boost charge	U = 2.33 to 2.40 V/cell, time limited
Charging time up to 90 %	6 h with 1.5 x I_{10} initial current, 2.23 V/cell, 50 % C_{10} discharged

6. Discharge characteristics

Reference temperature	20 °C (68 °F)
Initial capacity	according to IEC 60896-11: 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

Service life	18 years in stand-by operation, float at 20 °C to 25 °C (68 °F to 77 °F)
Water-refilling-interval	>3 years, float at 20 °C to 25 °C (68 °F to 77 °F)
IEC 60896-11 cycles	>1,200
Self-discharge	approx. 3 % per month at 20 °C (68 °F)
Battery temperature	-20 °C to 55 °C (-4 °F to 131 °F) recommended 10 °C to 30 °C (50 °F to 86 °F)
Standard	DIN 40737-3
Tests according to	IEC 60896-11
Safety standard, ventilation	EN 50272-2
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.

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