

Technical Specification for Stationary VLA-Cells

1. Application

BAE SECURA OPzS 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 1 h and more than 10 h.

Fields:

- Telecommunications
- Emergency lighting
- Microwave radio systems
- Power generation plants



2. Types, capacities, dimensions, weights

Type	C_{10h} 20 °C Ah	C_{5h} 20 °C Ah	C_{3h} 20 °C Ah	C_{1h} 20 °C Ah	C_{8h} 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							
2 OPzS 100*	111	97	86	63	110	1.52	1.37	105	208	420	9.1	14.5
3 OPzS 150*	167	145	129	95	165	1.06	1.96	105	208	420	11.2	16.4
4 OPzS 200	223	193	171	127	220	0.84	2.46	105	208	420	12.8	18.0
5 OPzS 250	279	242	214	159	276	0.70	2.98	126	208	420	15.3	21.7
6 OPzS 300	334	290	257	191	332	0.60	3.47	147	208	420	18.1	25.7
5 OPzS 350	389	346	306	223	392	0.57	3.61	126	208	535	20.0	28.8
6 OPzS 420	467	414	366	267	470	0.49	4.18	147	208	535	23.5	34.0
7 OPzS 490	544	483	429	310	548	0.44	4.69	168	208	535	26.8	39.1
6 OPzS 600	665	580	504	352	670	0.47	4.41	147	208	710	33.0	47.4
7 OPzS 700*	777	675	594	415	781	0.36	5.66	215	193	710	42.1	61.5
8 OPzS 800	886	770	675	473	888	0.32	6.36	215	193	710	46.6	65.4
9 OPzS 900*	992	860	753	522	1,000	0.33	6.20	215	235	710	51.4	75.4
10 OPzS 1000	1,100	960	840	585	1,112	0.28	7.25	215	235	710	56.0	79.4
11 OPzS 1100*	1,210	1,050	918	635	1,216	0.28	7.36	215	277	710	61.0	89.6
12 OPzS 1200	1,320	1,150	1,005	698	1,328	0.24	8.41	215	277	710	65.4	93.4
11 OPzS 1375*	1,470	1,295	1,137	790	1,496	0.24	8.38	215	277	855	72.7	105.9
12 OPzS 1500	1,600	1,415	1,245	869	1,632	0.22	9.48	215	277	855	77.4	110.4
13 OPzS 1625*	1,740	1,550	1,371	978	1,768	0.16	13.03	215	400	815	90.8	137.8
14 OPzS 1750*	1,880	1,665	1,473	1,051	1,904	0.15	13.82	215	400	815	95.3	142.4
15 OPzS 1875*	2,010	1,780	1,578	1,123	2,032	0.14	14.43	215	400	815	100.2	146.9
16 OPzS 2000	2,140	1,900	1,680	1,195	2,168	0.13	15.20	215	400	815	105.4	151.6
17 OPzS 2125*	2,290	2,030	1,797	1,280	2,320	0.12	16.91	215	490	815	117.7	175.1
18 OPzS 2250*	2,420	2,150	1,899	1,352	2,456	0.11	17.55	215	490	815	121.9	179.1
19 OPzS 2375*	2,560	2,265	2,004	1,425	2,592	0.11	18.36	215	490	815	126.8	183.6
20 OPzS 2500	2,690	2,380	2,106	1,496	2,728	0.11	18.92	215	490	815	132.0	188.3
22 OPzS 2750*	2,950	2,615	2,307	1,635	2,992	0.10	19.92	215	580	815	145.4	213.9
24 OPzS 3000	3,220	2,845	2,514	1,777	3,264	0.09	21.26	215	580	815	155.2	223.0
26 OPzS 3250*	3,480	3,080	2,715	1,917	3,536	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

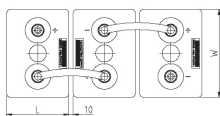
* Special type based on DIN 40736-1

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

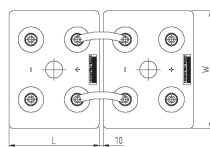
BAE SECURA OPzS cells are also available as dry pre-charged version. They are titled with additional „TG“, e.g. 12 OPzS 1500 TG.

All values given in the table correspond to 100 % DOD without voltage drop of connectors. Please consider item 6.

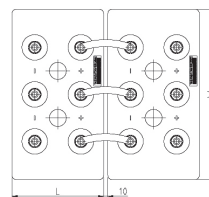
3. Terminal positions



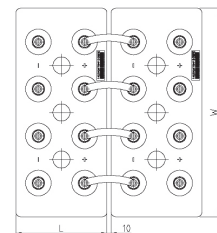
2 OPzS 100 to 6 OPzS 600



7 OPzS 700 to 12 OPzS 1500



13 OPzS 1625 to 16 OPzS 2000



17 OPzS 2125 to 26 OPzS 3250

Technical Specification for BAE *SECURA OPzS*



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 (20 °C / 68 °F)
Container	high impact, transparent SAN (styrene-acrylonitrile resin), UL-94 rating: HB
Lid	high impact plastic lid in 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 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 $U = 2.23 \text{ V/cell} \pm 1 \%$, between 10 °C and 30 °C (50 °F and 86 °F) in the monthly average, otherwise $\Delta U/\Delta T = -0.003 \text{ V/K}$
Float current	approx. 15 mA/100 Ah C ₁₀ , increasing to 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 $1.5 \times I_{10}$ 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 1 st cycle, 100 % at the 5 th 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 cell voltages, temperatures
Every 12 months	record battery and cell voltages and temperatures

8. Operational data

Service life	20+ 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	>1,500
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 40736-1 (except * marked cells)
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.

Authorized Distributor



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