

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

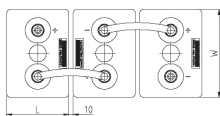
1, 2) Internal resistance R_i and short circuit current I_k according to IEC 60896-11

* Special type based on DIN 40736-1

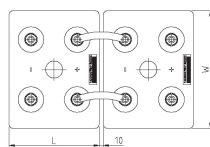
Height (H) is the maximum height between container bottom and top of the bolts in assembled condition.

All values published in the table correspond to 100 % discharge of current depending capacity without voltage drop of connectors.

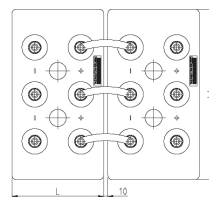
3. Terminal positions



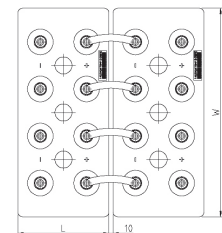
2 OPzS 100 to 6 OPzS 600



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, UL-94 rating: HB, on request also in ABS (Acrylonitrile-Butadiene-Styrene), UL-94 rating: V-0
Plugs	labyrinth plugs for arresting aerosols, recommended BAE ceramic funnel plugs according to DIN 40740 or BAE ceramic plugs
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 BGV A3

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

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 $\Delta U/\Delta T = -0.003 \text{ V/K}$
Boost charge	$U = 2.33$ to 2.40 V/cell , time limited

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

7. 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