

Technical Specification for Stationary VLA-Cells

1. Application

BAE 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

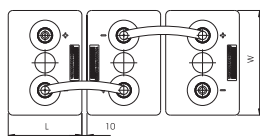


2. Types, capacities, dimensions, weights

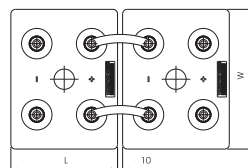
Type	C_{10h} 20 °C Ah	C_{5h} 20 °C Ah	C_{3h} 20 °C Ah	C_{1h} 20 °C Ah	C_{8h} 25 °C Ah	R_i 1) mΩ	I_k 2) kA	Length (L) mm	Width (W) mm	Height (H) mm	Weight dry kg	Weight filled kg
U_e V/cell	1.80	1.77	1.75	1.67	1.75							
2 OPzS 100*	111	94.5	78.3	54.4	108	1.900	1.08	105	208	420	9.3	15.4
3 OPzS 150*	162	138	114	79.6	159	1.270	1.62	105	208	420	11.3	17,0
4 OPzS 200	201	173	144	100	197	0.950	2.16	105	208	420	12.8	17.8
5 OPzS 250	257	221	184	128	252	0.760	2.70	126	208	420	15.2	21.0
6 OPzS 300	317	271	226	158	312	0.630	3.24	147	208	420	17.8	25.0
5 OPzS 350	371	333	292	213	369	0.700	2.90	126	208	535	20.0	27.0
6 OPzS 420	468	419	363	266	468	0.580	3.48	147	208	535	22.8	32.0
7 OPzS 490	543	486	423	309	542	0.500	4.06	168	208	535	26.4	37.0
6 OPzS 600	670	585	495	359	668	0.470	4.32	147	208	710	32.7	46.0
8 OPzS 800	932	810	684	492	928	0.350	5.76	215	193	710	44.6	64.0
10 OPzS 1000	1,090	960	813	591	1,088	0.280	7.20	215	235	710	54.3	75.9
12 OPzS 1200	1,320	1,165	984	715	1,320	0.230	8.64	215	277	710	63.4	89.7
12 OPzS 1500	1,670	1,450	1,251	874	1,648	0.220	9.18	215	277	855	75.4	110.0
16 OPzS 2000	2,130	1,865	1,617	1,135	2,112	0.170	12.24	215	400	815	117.9	150.0
20 OPzS 2500	2,780	2,420	2,088	1,457	2,752	0.140	15.30	215	490	815	127.0	187.0
22 OPzS 2750*	3,060	2,665	2,298	1,603	3,024	0.120	16.83	215	580	815	141.0	205.0
24 OPzS 3000	3,470	3,015	2,583	1,792	3,432	0.110	18.36	215	580	815	146.0	218.8
26 OPzS 3250*	3,620	3,150	2,715	1,894	3,576	0.100	19.97	215	580	815	156.0	231.0

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

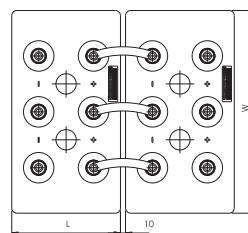
* Special type based on DIN 40736-1



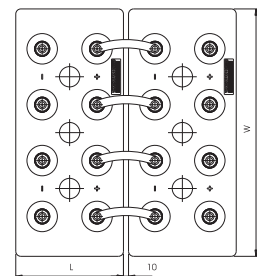
2 OPzS 100 to 6 OPzS 600



8 OPzS 800 to 12 OPzS 1500



16 OPzS 2000



20 OPzS 2500 to 26 OPzS 3250

Technical Specification for BAE *SECURA OPzS*

3. Design

Positive electrode	tubular-plate with woven polyester gauntlet and solid grids in a corrosion-resistant PbSb1.6SnSe-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 dark grey coloured plastic lid, UL-94 rating: HB
Plugs	labyrinth plugs for arresting aerosol, 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	covered steel screw M10, insulated, with measuring point
Kind of protection	IP 25 regarding DIN 40050, touch protected according to VBG 4

4. 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, increasing to 30 mA/100 Ah at the end of operational 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

5. 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

6. Maintenance

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

7. Operational data

Operational life	20+ years in stand-by operation, float at 20 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 rule 598 (chapter 3.3.) are observed.



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