

Technical Specification for Stationary VRLA - Cells

1. Application

The BAE OPzV Series VRLA tubular plate gel batteries belong to the best EUROBAT classification for maintenance free lead-acid batteries. These are classified as >12 year, long life, the highest classification according to EUROBAT. They are ideally suited for stand-by operations with high requirement of operational safety. They perfectly meet requirements for bridging times between 1h to more than 10h.

Application Uses:

- Telecommunications
- Microwave radio systems
- Emergency lighting
- Power generation plants
- Electrical utilities applications
- Outdoor enclosures
- Photovoltaic applications

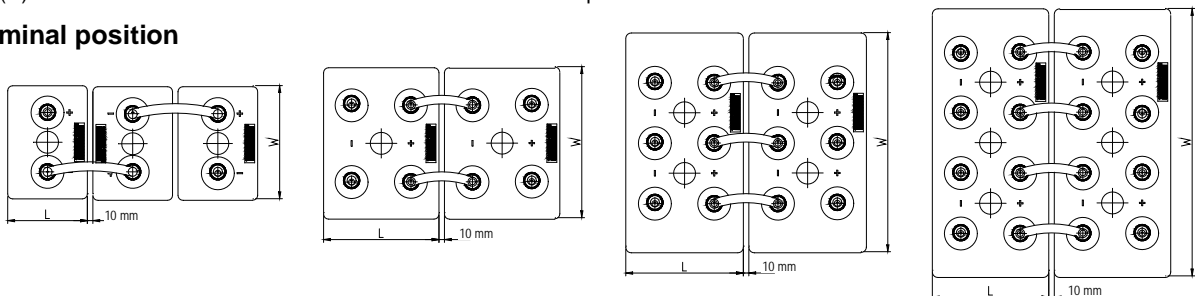


2. Types, capacities, dimensions, weight

Type	1 min 25°C	C ₁ 25°C	C ₄ 25°C	C ₈ 25°C	C ₁₂ 25°C	R _i 1)	I _k 2)	Length (L)	Width (W)	Height (H)	Weight filled	Lead mass
U _e V/cell	Amps 1.75	Ah 1.75	Ah 1.75	Ah 1.75	Ah 1.75	mΩ	kA	inch	inch	inch	lbs	lbs
2 OPzV 100	190	64	100	120	132	1.65	1.30	4.06	8.11	15.95	27.4	17.2
3 OPzV 150	269	96	152	176	192	1.15	1.86	4.06	8.11	15.95	37.6	23.2
4 OPzV 200	342	128	204	232	252	0.89	2.40	4.06	8.11	15.95	42.7	29.2
5 OPzV 250	408	161	256	296	324	0.73	2.91	4.88	8.11	15.95	51.4	35.2
6 OPzV 300	468	192	304	352	384	0.63	3.39	5.71	8.11	15.95	60.4	41.3
5 OPzV 350	429	214	356	416	480	0.68	3.14	4.88	8.11	20.47	69.3	47.7
6 OPzV 420	491	257	424	504	564	0.58	3.64	5.71	8.11	20.47	81.4	56.0
7 OPzV 490	547	300	496	584	648	0.52	4.12	6.54	8.11	20.47	93.5	64.4
6 OPzV 600	610	358	616	720	780	0.47	4.63	5.71	8.11	27.44	112.4	78.6
7 OPzV 700	800	418	716	840	912	0.36	5.81	8.27	7.52	27.44	136.4	93.5
8 OPzV 800	895	478	820	960	1032	0.32	6.54	8.27	7.52	27.44	151.6	105.2
9 OPzV 900	1022	538	920	1072	1176	0.34	6.29	8.27	9.17	27.44	169.7	117.0
10 OPzV 1000	1166	598	1020	1192	1284	0.28	7.50	8.27	9.17	27.44	185.0	128.6
11 OPzV 1100	1174	657	1124	1312	1416	0.28	7.56	8.27	10.83	27.44	203.4	140.5
12 OPzV 1200	1306	717	1228	1432	1536	0.24	8.63	8.27	10.83	27.44	218.6	152.1
11 OPzV 1375	1212	710	1248	1536	1680	0.27	7.86	8.27	10.83	33.27	238.6	160.7
12 OPzV 1500	1347	775	1364	1672	1824	0.23	9.18	8.27	10.83	33.27	256.8	174.5
13 OPzV 1625	1613	839	1480	1808	2016	0.18	11.91	8.43	15.71	32.36	289.8	191.0
14 OPzV 1750	1698	904	1592	1944	2208	0.17	13.63	8.43	15.71	32.36	311.4	204.3
15 OPzV 1875	1780	969	1708	2088	2304	0.16	13.25	8.43	15.71	32.36	326.0	217.8
16 OPzV 2000	1863	1033	1820	2224	2448	0.15	13.94	8.43	15.71	32.36	344.3	231.7
17 OPzV 2125	2080	1098	1932	2368	2640	0.14	15.32	8.35	19.17	32.36	382.6	254.3
18 OPzV 2250	2212	1162	2048	2504	2784	0.13	16.03	8.35	19.17	32.36	400.0	267.6
19 OPzV 2375	2253	1227	2160	2648	2916	0.12	16.70	8.35	19.17	32.36	418.0	281.1
20 OPzV 2500	2482	1292	2276	2784	3060	0.12	17.37	8.35	19.17	32.36	436.2	294.9
22 OPzV 2750	2637	1421	2504	3056	3420	0.14	18.43	8.35	22.68	32.36	453.4	322.2
24 OPzV 3000	2788	1550	2732	3336	3696	0.10	19.76	8.35	22.68	32.36	489.5	349.3
26 OPzV 3250	2935	1679	2960	3616	3876	0.10	21.02	8.35	22.68	32.36	518.3	376.3

1) Internal resistance from IEC 60896-11; 2) Short circuit current from IEC 60896-11; All data is subject to change. Height (H) is the maximum distance between container bottom and top of the bolts in assembled condition.

3. Terminal position



2 OPzV 100 to 6 OPzV 600 7 OPzV 700 to 12 OPzV 1500 13 OPzV 1625 to 16 OPzV 2000 17 OPzV 2125 to 26 OPzV 3250

Technical Specification for BAE **SECURA OPzV**

4. Design

Positive electrode	Tubular - plate with a polyester gauntlet and solid grids in a corrosion-resistant PbCaSn - alloy
Negative electrode	Grid - plate in a PbCaSn alloy with long - life expander material
Separation	Microporous separator
Electrolyte	Sulphuric acid with a density of 1.24 kg/l, fixed as a GEL by fumed silica
Container and lid	High impact SAN (Styrol-Acrylic-Nitrile), grey coloured, UL-94 rating: HB (Alternatively container and lid in ABS (Acrylonitrile-Butadiene-Styrene), UL-94 rating: V0)
Valve	Valve with flame arrestor, opening pressure approx. 120 mbar, closing pressure approx. 50 mbar
Pole - bushing	100% gas and electrolyte tight, sliding, injection moulded "Panzerpol"
Kind of pole	M10 brass insertion
Intercell connectors	Insulated solid copper connectors with cross-sections of 90, 150 or 300 mm ² depending upon application
Inter-tier connectors	Flexible insulated copper cables
Connector screw	M10 stainless steel with insulated cap
Kind of protection	IP 25 regarding DIN 40050, touch protected according 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 $U = 2.25V/cell \pm 1\%$, between 10°C and 45°C (50°F to 113°F) $\Delta U/\Delta T = -0.003 V/K$ below 10°C in the monthly average
float current	20mA/100Ah, increasing to 30mA/100Ah at the end of life
boost charge	$U = 2.33$ to 2.40V/cell, time limited
charging time up to 90%	6h with 1.5· I_{10} initial current, 2.25 V/cell, 50% C10 discharged

6. Discharge characteristics

reference temperature	25°C (77°F)
initial capacity	95% or better at time of delivery
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 and record battery voltage, pilot cell voltage and temperature
Every 12 months	Check and record battery voltage, cell voltages and temperatures

8. Operational data

Classification - EUROBAT	> 12 years, Long life
Operational life	15 to 20 years in stand-by operation, float at 20°C to 25°C (68°F to 77°F)
Maintenance-free	No topping off water during life
IEC 60 896-2 cycles	>1500
Self-discharge	Approx. 2% per month at 20°C (68°F)
Operational temperature	-20°C to 45°C (-4°F to 113°F), recommended 10°C to 30°C (50°F to 86°F), short-periods 45°C to 55°C (113°F to 131°F)
Standard	DIN 40742 part 1
Tests according to	IEC 60896-21, -22
Safety standard, ventilation	DIN EN 50272-2, Ventilation requirements are reduced to 20% compared to those for vented batteries of the same capacity
Transport	Subject to DOT Regulations – See SDS for details.

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