

# RES OPzS Premium Quality Batteries for Renewable Energy Storage



BATTERIES



SOLAR PV



WIND



GENSET



 **SUNLIGHT**  
Reliable Battery Solutions

## RES OPzS OVERVIEW

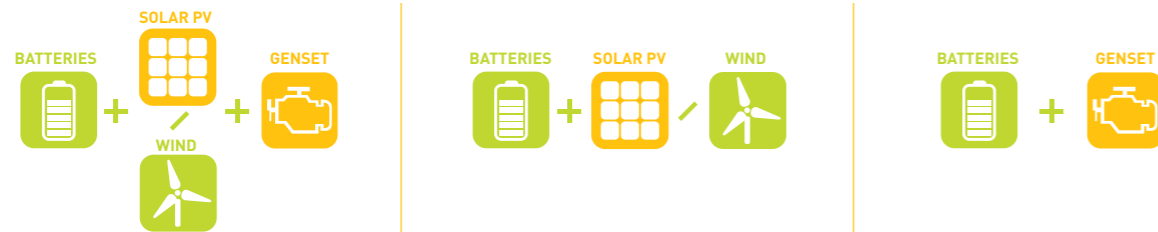
### Vented Tubular Plate Batteries for Renewable Energy Applications

RES OPzS is a **premium range**, developed for applications **requiring regular deep cycling**. It is a **low maintenance** energy storage solution that offers significant benefits in terms of cost per cycle, combined with the highest level of **reliability** and **performance** even for remote installations where long discharges occur and excellent recharging properties are essential.

Optimum design, exclusive use of high quality materials, robust construction and state of the art manufacturing processes make RES OPzS batteries an **ideal solution for demanding Renewable Energy Storage applications**.

### APPLICATIONS

#### Indicative Battery-Based Power Supply Systems



- **Telecom Networks**  
Autonomous remote communication hubs such as cellular base stations, repeaters and VSATs.
- **Mini-Grids**  
Electricity to isolated off-grid areas or regions with unstable power supply
- **Residential Installations**  
Off-grid or smart grid connected power systems electrifying homes, hotels, hospitals, schools or factories
- **Traffic systems**  
Signaling and lighting to roads, railways, airports and marines



### CERTIFIED QUALITY

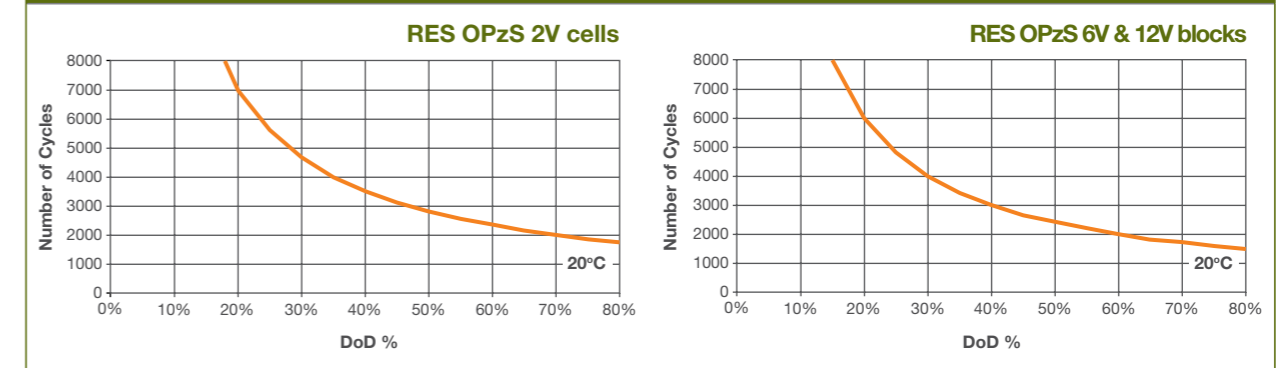
- Compliant with IEC 61427 requirements for photovoltaic energy systems
- Fully compliant with IEC 60896-11 requirements for vented lead-acid batteries
- Full conformity to DIN 40736-1 specifications for OPzS cells and DIN 40737-3 for OPzS blocks
- Compliant with the safety requirements of EN 50272-2 for stationary batteries
- Manufactured at SUNLIGHT's European production facilities, certified with ISO 9001, ISO 14001, BS OHSAS 18001

### QUALITY FEATURES & PRODUCT BENEFITS

#### Long cycle life

Tubular positive plates, unique sliding pole design and special alloys composition offer a 60% DoD cycle life of 2300 cycles for 2V cells and 2000 cycles for 6V & 12V blocks.

#### Number of Cycles vs. DoD



#### Outstanding performance and reliability

Products of optimum design made from high quality raw materials in European state-of-the-art production facilities and cumulative experience on advanced submarine battery manufacturing, ensure reliability in applications demanding high performance.

#### Minimum maintenance

Low maintenance design with reduced topping up needs. Transparent container for easy visual electrolyte level monitoring.

#### Space optimization

Racks designed for optimal space utilization, quick installation and easy battery maintenance.

#### Operational safety

Extensive compliance testing performed under European and Global norms and verified by independent 3<sup>rd</sup> party certification agencies.

#### Complete battery solution

Complete and ready to install systems, filled and charged or dry charged form with all the necessary accessories. Extensive range of adding value products and services.

#### Flexibility

Design and production of customized products and services, high volume orders handling capability, fast delivery.

#### Peace-of-mind

24x7 experienced pre-sales and after sales support through SUNLIGHT Global Partners Network.

#### Optimum Total Cost of Ownership (TCO)

Low cost per cycle. Lifetime value maximized especially at hybrid systems where using batteries can greatly reduce the Genset daily run time resulting on fuel savings and less CO<sub>2</sub> emission.

**The ideal energy solution for Renewable Energy Storage applications**

**TECHNICAL FEATURES & PRODUCT BENEFITS**

**1 Positive Plates**

- Tubular plate design
- Special low antimony lead alloy ( $\leq 1.65\%$  Sb)
- Red Lead in-house production by 99,9% Pure Lead
- Dry Filling process

- ✓ Long cycle life
- ✓ Excellent cycling properties
- ✓ Quality and homogeneity
- ✓ High capacity performance
- ✓ Reduced corrosion
- ✓ Reduced self-discharge rate
- ✓ Increased tolerance even in cases of poor charging conditions

**2 Negative Plates**

- Paste mixture ensures high adherence and cohesion
- Pasted negative plates of grid design
- Optimized low antimony lead alloy
- Robust construction
- Long life expander

- ✓ Stability
- ✓ Increased cyclic performance
- ✓ Long battery life

**3 Gauntlet**

- Highly microporous material
- Fine pore structure
- Low electrical resistance

- ✓ Effective active material retention
- ✓ Eliminates active mass shedding

**4 Bottom Bar**

- Ultrasonic welding

- ✓ Secured fit to the gauntlet
- ✓ Long battery life

**5 Pole bridge**

- Welding with high quality alloy
- Optimized design

- ✓ Increased robustness and durability
- ✓ Consistent and uniform poles-bridge-plate block connection

**6 Electrolyte**

- High purity sulphuric acid with nominal density of 1.24 +/- 0,01 kg/l (20°C)

- ✓ Low self discharge rates
- ✓ Excellent performance on deep discharges

**13 Monoblocks' Internal Intercell Connectors**

- Copper bars premium design
- Outside of the container connection

- ✓ High conductivity
- ✓ Safe and long operational life

**12 External Intercell Connectors**

- Flexible
- Copper
- Fully insulated
- Fixed with plastic head bolt safety screw and probe hole on the top

- ✓ Allow voltage measurements
- ✓ High conductivity
- ✓ Increased safety

**11 Pole Insert**

- Brass insert
- Threaded female M10 terminal posts

- ✓ High conductivity
- ✓ Maximum torque retention

**7 Separators**

- Manufactured from microporous silica-based PVC material
- Allow migration of ions during charge/discharge
- More acid in the surrounding area of the plates

- ✓ Secured protection against short circuits
- ✓ High temperature stability
- ✓ Mechanical strength
- ✓ Low internal resistance

**8 Container / Lid**

- High impact resistant, transparent SAN (Styrene Acrylonitrile) for the container
- Robust ABS (Acrylonitrile Butadiene Styrene) Material for the lid
- Sealing between container - lid with polyurethane Stobicoll resin
- 100% leakage quality control with high precision Froehlich equipment

- ✓ Easy visual electrolyte level monitoring
- ✓ Long term leakage free operation
- ✓ Unsurpassed mechanical strength
- ✓ Robust and durable battery construction

**9 Ceramic Vent Plugs**

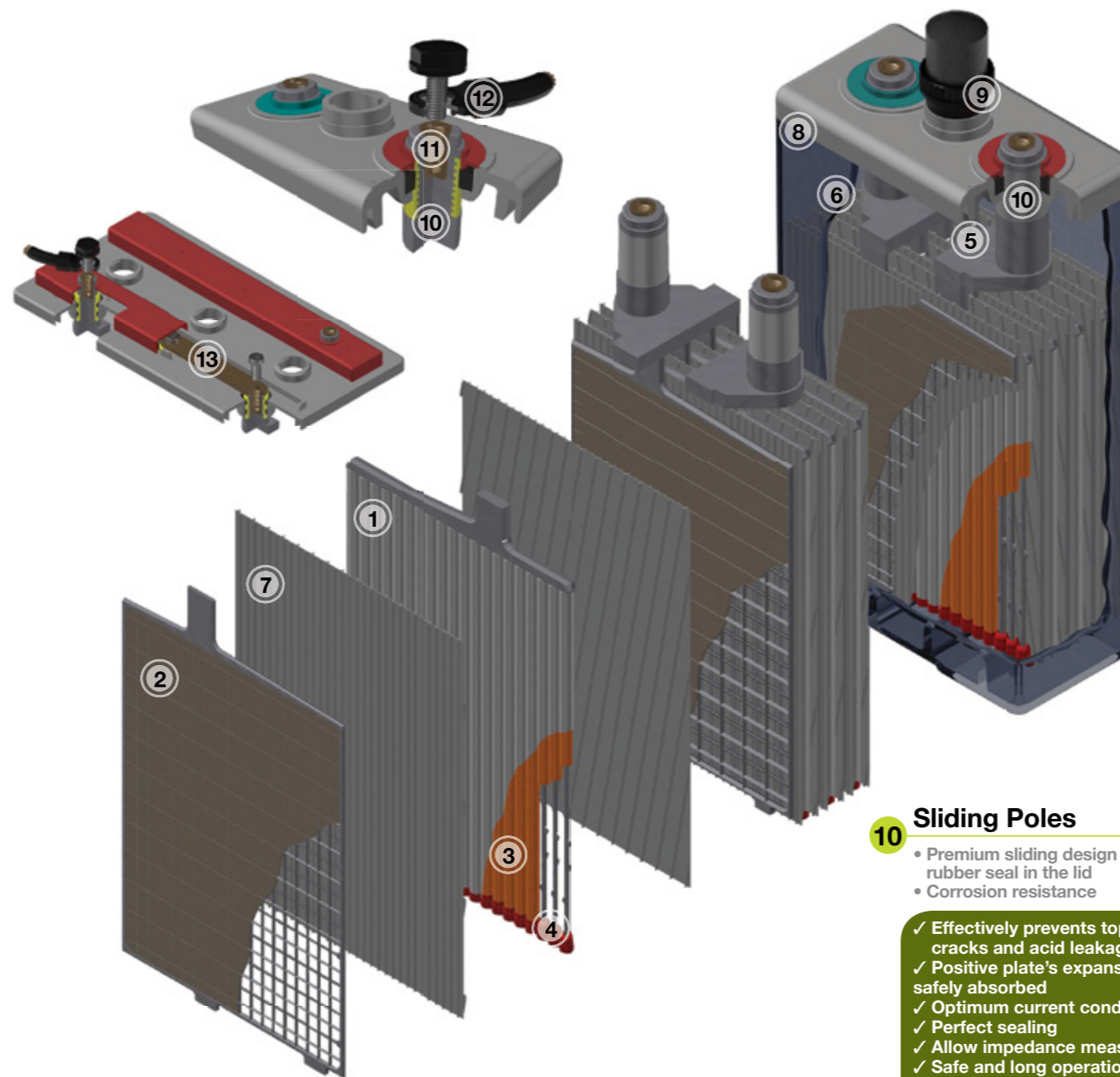
- Low maintenance design
- Flame arresting
- Funnel plugs also available

- ✓ Efficient containment of acid fumes
- ✓ No electrolyte spillage
- ✓ Reduced water evaporation
- ✓ Funnel plugs allow topping-up and electrolyte density measuring without plug removal
- ✓ Increased safety

**10 Sliding Poles**

- Premium sliding design with rubber seal in the lid
- Corrosion resistance

- ✓ Effectively prevents top lid cracks and acid leakages
- ✓ Positive plate's expansion is safely absorbed
- ✓ Optimum current conductivity
- ✓ Perfect sealing
- ✓ Allow impedance measurements
- ✓ Safe and long operational life

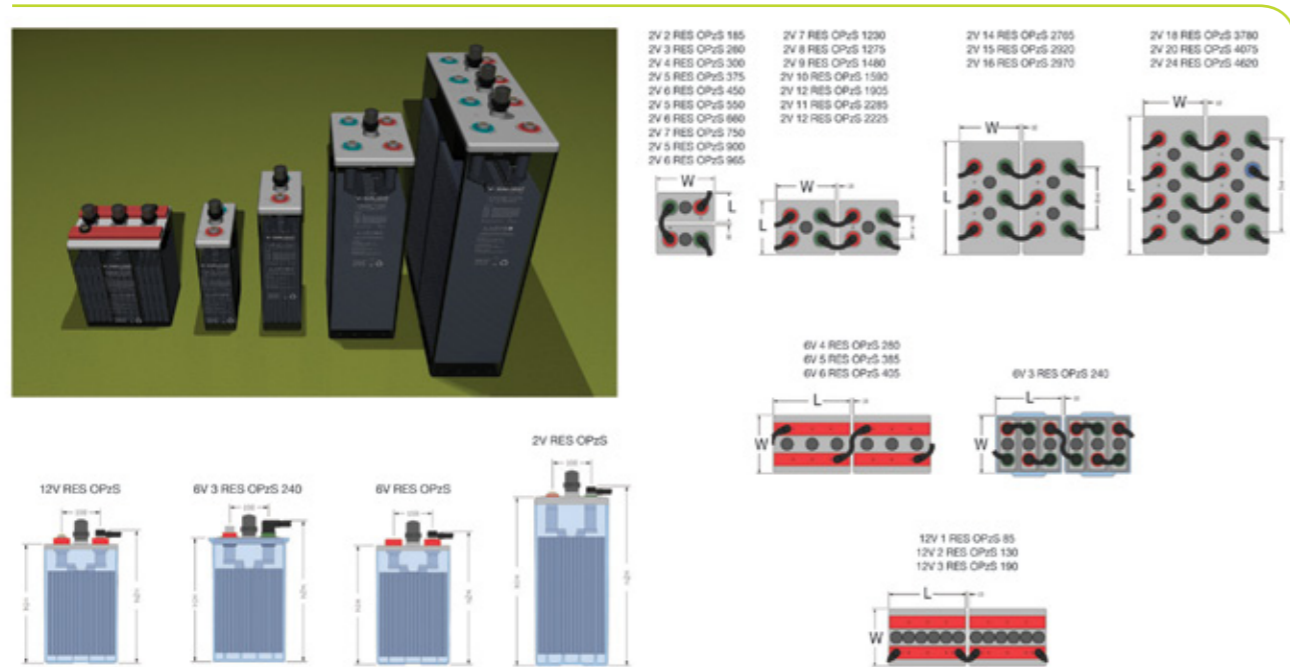


**PRODUCT RANGE**

Type	Positive Plates Number	Number of Poles	Nom. capacity (Ah at 20°C)					Length (mm)	Width (mm)	Height (mm)	Height <sub>2</sub> * (mm)	Poles Distance	Filled Weight (approx. kg)	Dry Weight (approx. kg)	Internal Resistance (mOhm)	Short Circuit Current (A)
			C240 1.85 Vpc	C120 1.85 Vpc	C48 1.80V pc	C24 1.80 Vpc	C12 1.80 Vpc									
2V 2 RES OPzS 185	2	2	197	187	168	148	132	103	206	355	369	-	14	8	1.620	1240
2V 3 RES OPzS 260	3	2	274	263	235	209	188	103	206	355	369	-	16	11	1.083	1860
2V 4 RES OPzS 300	4	2	310	300	272	243	224	103	206	355	369	-	18	13	0.847	2380
2V 5 RES OPzS 375	5	2	391	378	343	307	281	124	206	355	369	-	21	15	0.671	3000
2V 6 RES OPzS 450	6	2	470	454	411	368	338	145	206	355	369	-	26	19	0.575	3500
2V 5 RES OPzS 550	5	2	574	553	498	444	413	124	206	471	485	-	28	21	0.608	3300
2V 6 RES OPzS 660	6	2	686	661	596	530	494	145	206	471	485	-	34	24	0.518	3900
2V 7 RES OPzS 750	7	2	780	750	676	602	564	166	206	471	485	-	39	28	0.453	4450
2V 5 RES OPzS 900	5	2	948	904	797	695	639	145	206	646	660	-	42	29	0.537	3750
2V 6 RES OPzS 965	6	2	1006	966	859	754	703	145	206	646	660	-	46	33	0.447	4500
2V 7 RES OPzS 1230	7	4	1286	1230	1088	950	877	191	210	646	660	80	60	43	0.477	5350
2V 8 RES OPzS 1275	8	4	1330	1278	1139	1001	934	191	210	646	660	80	64	47	0.327	6200
2V 9 RES OPzS 1480	9	4	1546	1484	1319	1157	1076	233	210	646	660	110	73	53	0.292	6950
2V 10 RES OPzS 1590	10	4	1656	1592	1419	1248	1165	233	210	646	660	110	78	57	0.261	7750
2V 12 RES OPzS 1905	12	4	1985	1908	1695	1487	1391	275	210	646	660	140	91	66	0.228	8850
2V 11 RES OPzS 2285	11	4	2369	2286	2064	1830	1698	275	210	797	811	140	111	76	0.238	8500
2V 12 RES OPzS 2225	12	4	2294	2226	2024	1807	1701	275	210	797	811	140	115	81	0.225	9000
2V 14 RES OPzS 2765	14	6	2868	2770	2505	2224	2069	397	212	772	786	110	143	96	0.195	10350
2V 15 RES OPzS 2920	15	6	3019	2921	2650	2361	2208	397	212	772	786	110	149	103	0.176	11500
2V 16 RES OPzS 2970	16	6	3065	2972	2710	2424	2279	397	212	772	786	110	155	109	0.160	12600
2V 18 RES OPzS 3780	18	8	3917	3780	3419	3038	2811	487	212	772	786	110	184	125	0.140	14450
2V 20 RES OPzS 4075	20	8	4217	4076	3696	3291	3057	487	212	772	786	110	201	135	0.125	16200
2V 24 RES OPzS 4620	24	8	4769	4620	4199	3747	3508	576	212	772	786	140	230	158	0.108	18800
6V 3 RES OPzS 240	3	2	252	242	221	199	184	233	224	345	377	-	41	30	1.138	1780
6V 4 RES OPzS 280	4	2	293	283	261	237	223	272	205	332	361	-	47	35	0.900	2240
6V 5 RES OPzS 385	5	2	403	389	355	320	298	380	205	332	361	-	61	44	0.760	2660
6V 6 RES OPzS 405	6	2	422	408	376	341	323	380	205	332	361	-	67	51	0.667	3040
12V 1 RES OPzS 85	1	2	91	86	78	71	65	272	205	332	361	-	38	24	3.226	620
12V 2 RES OPzS 130	2	2	137	132	121	111	106	272	205	332	361	-	49	38	1.613	1260
12V 3 RES OPzS 190	3	2	199	191	176	161	155	380	205	332	361	-	70	53	1.138	1780

\* Includes installed connectors and shrouds

**DRAWINGS**



ISO 9001 | ISO 14001 | BS OHSAS 18001 certified

**ADDED VALUE SERVICES**

- Design and implementation of turnkey solutions
- Installation & maintenance services according to EN50272-2 safety requirements (CE compliance)
- 360° Technical Support 24x7 through SUNLIGHT Global Partners Network
- Training and consulting
- Battery Collection and Recycling Services

**WHY SUNLIGHT**

**30 years of Experience in Battery Business**

- TOP 3 in the global advanced technology battery sector
- TOP 5 in the European industrial battery sector
- 98% of battery production is being exported
- Design and manufacturing of numerous premium solutions complying to demanding requirements

**“One Stop Solution”**

- From single components/products to turn-key solutions
- Robust high quality products & services portfolio
- Lifetime value maximization & total cost of ownership approach

**Extensive Global Know-how**

- Co-operation with TOP market players and equipment providers worldwide
- A fast growing Global Partners Network
- More than 300 totally independent off-grid Power Supply Systems installed worldwide

**Exceptional Customer Service**

- Highly experienced engineering team for design & development
- Pre-Sales & After-Sales Service providing global support
- Project Management competence

## **SYSTEMS SUNLIGHT S.A.**

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