

RES OPzV Premium Quality Batteries for Renewable Energy Storage



BATTERIES



SOLAR PV



WIND



GENSET



SUNLIGHT

creating energy

RES OPzV OVERVIEW

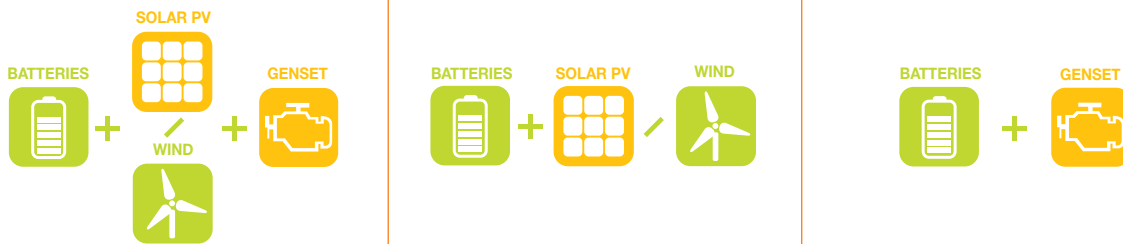
Valve Regulated Tubular Plate GEL Batteries for Renewable Energy Applications

RES OPzV is a **premium range**, developed for applications requiring **regular deep cycling**. It is a **maintenance-free** 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 OPzV 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



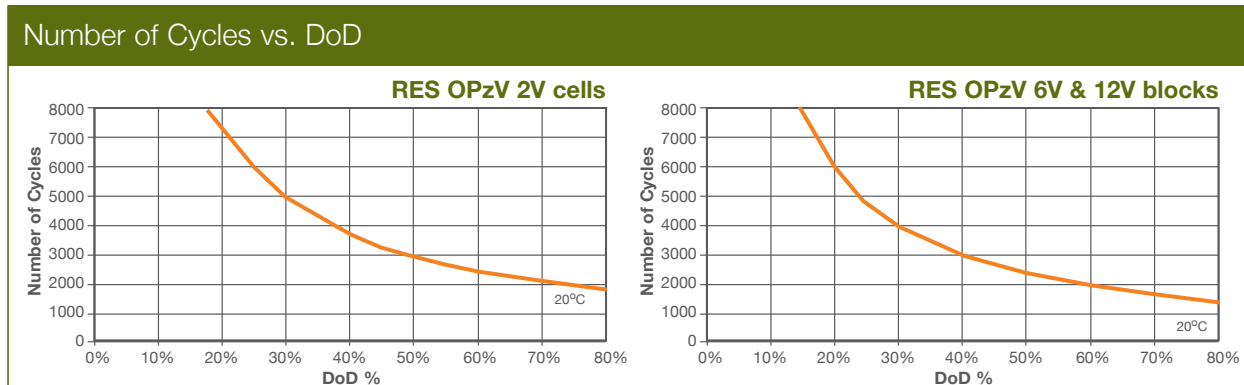
CERTIFIED QUALITY

- “Long Life” according to Eurobat classification
- Compliant with IEC 61427 requirements for photovoltaic energy systems
- Tested according to IEC 60896-21 and fully compliant with IEC 60896-22 requirements for valve regulated batteries
- Full conformity to DIN 40742 specifications for OPzV cells and DIN 40744 for OPzV blocks
- Compliant with the safety requirements of EN 50272-2 for stationary batteries
- Manufactured in SUNLIGHT’s European production facilities, certified with ISO 9001, ISO 14001, BS OHSAS 18001

QUALITY FEATURES & PRODUCT BENEFITS

Long cycle life

Tubular positive plates, GEL form electrolyte, unique sliding pole design and special alloys composition offer a 60% DoD cycle life of up to 2500 cycles for 2V cells and 2000 cycles for 6V & 12V blocks.



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.

Reduced maintenance cost

Maintenance-free design without water topping-up needs.

Space optimization

Vertical and horizontal installation. 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 3rd party certification agencies.

Complete battery solution

Complete and ready to install systems 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 is maximized especially at hybrid systems where using batteries can greatly reduce the Genset daily run time resulting on fuel savings and less CO₂ emission.

The ideal energy solution for Renewable Energy Storage applications

TECHNICAL FEATURES & PRODUCT BENEFITS

1 Positive Plates

- Tubular plate design
- Optimized Lead Calcium Tin Alloy reducing hydrogen evolution
- Red Lead in-house production by 99.99% 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

- Pasted negative plates of grid design
- Paste mixture that ensures high adherence and cohesion
- Optimized corrosion resistant Lead Calcium Tin Alloy
- Robust construction
- Long life expander

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

3 Gauntlet

- Highly porous woven material
- Optimum compression of the active material

- ✓ Eliminates active mass shedding
- ✓ High capacity performance

Monoblocks' Internal Intercell Connectors

- 13 • Copper bars premium design
- Outside of the container connection

- ✓ High conductivity
- ✓ Safe and long operational life

External Intercell Connectors

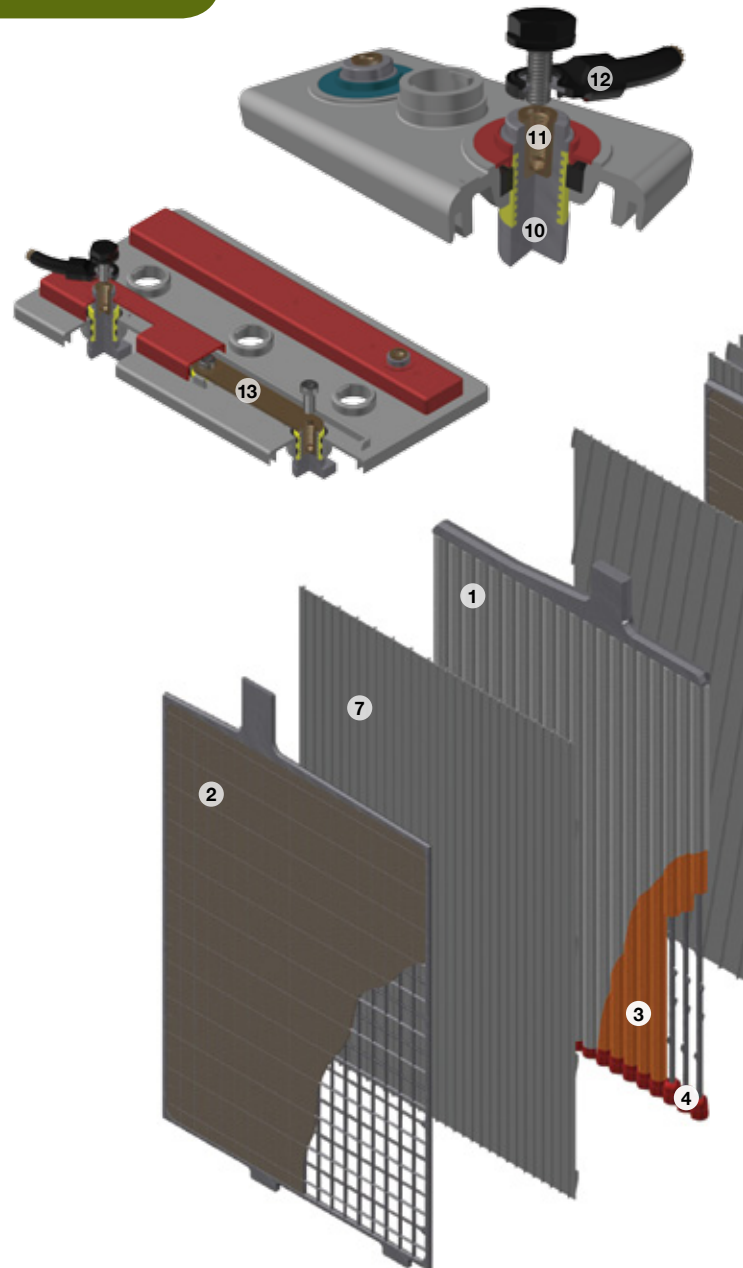
- 12 • Flexible
- Copper
- Fully insulated
- Fixed with plastic head bolt safety screw and probe hole on the top

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

Pole Insert

- 11 • Brass insert
- Threaded female M10 terminal posts

- ✓ High conductivity
- ✓ Maximum torque retention



4 Bottom Bar

- Ultrasonic welding

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

5 Pole Bridge

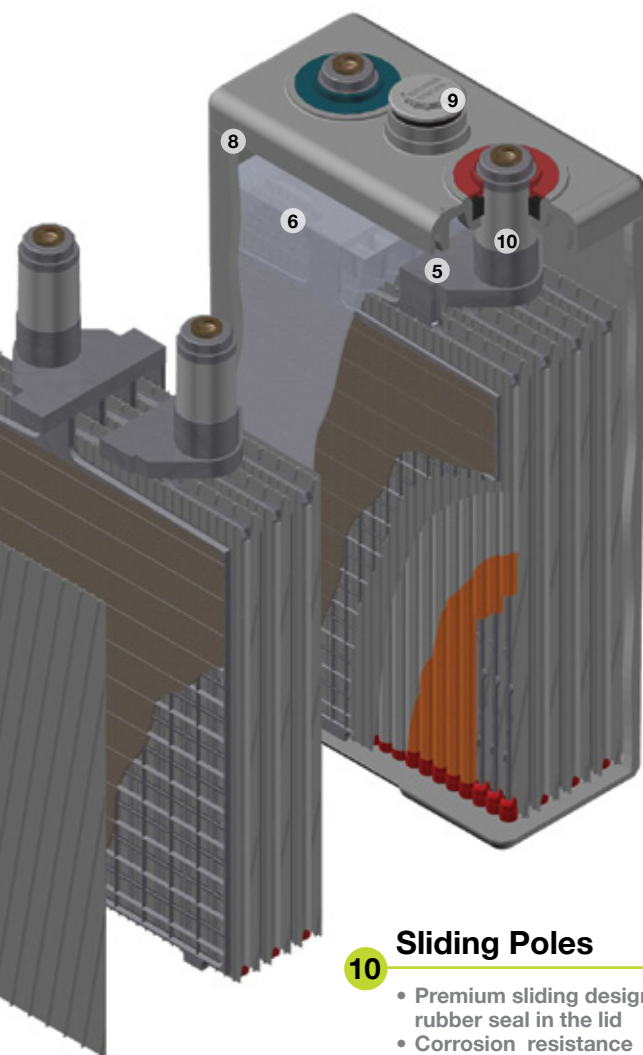
- Welding with high quality alloy
- Optimized design

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

6 Electrolyte

- Immobilized in GEL form sulphuric acid with nominal density of 1,26 kg/l (20°C)
- State of the art GEL filling equipment
- High purity silica for GEL formation
- Effective diffusion of GEL

- ✓ Operation without acid stratification or dendrite growth
- ✓ High performance on deep discharges
- ✓ Low self discharge



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

- Heavy Duty ABS (Acrylonitrile Butadien Styrene) Material
- Optionally flame retardant (Class V0) ABS material
- Sealing between container - lid with polyurethane Stobicoll resin
- 100% leakage quality control with high precision Froehlich equipment

- ✓ Long term leakage free operation
- ✓ Unsurpassed mechanical strength
- ✓ Robust and durable battery construction

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

9 Valve

- Maintenance-free design
- Pressure relief
- Integral flame arrestor

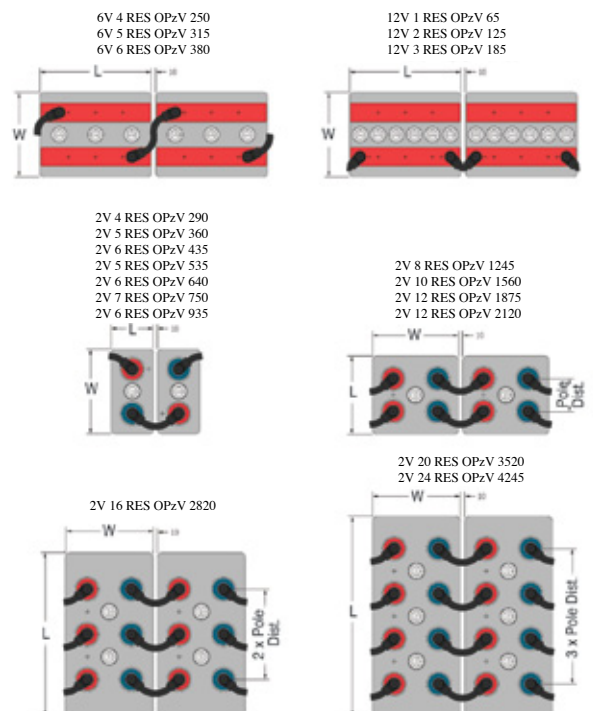
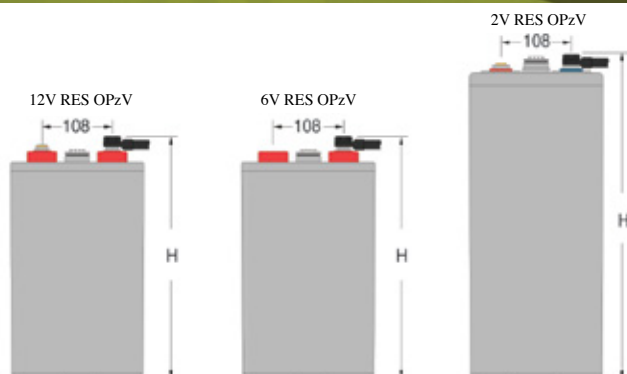
- ✓ No water topping-up required
- ✓ Increased safety

PRODUCT RANGE

| | Type | Positive Plates Number | Number of Poles | Nom. capacity (Ah at 20°C) | | | | | Length (mm) | Width (mm) | Height* (mm) | Poles Dist. (mm) | Weight (approx. kg) | Short Circuit Current (A) | Internal Resistance (mOhm) |
|--------|---------------------|------------------------|-----------------|----------------------------|------------------|-----------------|-----------------|-----------------|-------------|------------|--------------|------------------|---------------------|---------------------------|----------------------------|
| | | | | C240 1.85 Vpc | C120 1.85 Vpc | C48 1.80 Vpc | C24 1.80 Vpc | C12 1.75 Vpc | | | | | | | |
| Cells | 2V 4 RES OPzV 290 | 4 | 2 | 301 | 290 | 281 | 258 | 232 | 103 | 206 | 382 | - | 20 | 2300 | 0.88 |
| | 2V 5 RES OPzV 360 | 5 | 2 | 376 | 363 | 352 | 323 | 290 | 124 | 206 | 382 | - | 24 | 2860 | 0.71 |
| | 2V 6 RES OPzV 435 | 6 | 2 | 452 | 435 | 423 | 388 | 347 | 145 | 206 | 382 | - | 28 | 3380 | 0.60 |
| | 2V 5 RES OPzV 535 | 5 | 2 | 561 | 536 | 517 | 472 | 420 | 124 | 206 | 498 | - | 31 | 3380 | 0.60 |
| | 2V 6 RES OPzV 640 | 6 | 2 | 675 | 644 | 622 | 567 | 504 | 145 | 206 | 498 | - | 37 | 3980 | 0.51 |
| | 2V 7 RES OPzV 750 | 7 | 2 | 789 | 753 | 727 | 662 | 588 | 166 | 206 | 498 | - | 42 | 4520 | 0.45 |
| | 2V 6 RES OPzV 935 | 6 | 2 | 986 | 937 | 892 | 809 | 716 | 145 | 206 | 673 | - | 50 | 4360 | 0.47 |
| | 2V 8 RES OPzV 1245 | 8 | 4 | 1311 | 1247 | 1187 | 1077 | 954 | 191 | 210 | 673 | 80 | 68 | 5980 | 0.34 |
| | 2V 10 RES OPzV 1560 | 10 | 4 | 1641 | 1560 | 1485 | 1347 | 1193 | 233 | 210 | 673 | 110 | 82 | 7380 | 0.28 |
| | 2V 12 RES OPzV 1875 | 12 | 4 | 1976 | 1877 | 1786 | 1618 | 1432 | 275 | 210 | 673 | 140 | 97 | 8640 | 0.24 |
| | 2V 12 RES OPzV 2120 | 12 | 4 | 2214 | 2120 | 2050 | 1878 | 1678 | 275 | 210 | 824 | 140 | 120 | 9440 | 0.22 |
| | 2V 16 RES OPzV 2820 | 16 | 6 | 2949 | 2824 | 2731 | 2503 | 2237 | 399 | 214 | 799 | 110 | 165 | 12680 | 0.16 |
| | 2V 20 RES OPzV 3520 | 20 | 8 | 3678 | 3523 | 3412 | 3127 | 2796 | 487 | 212 | 799 | 110 | 200 | 16240 | 0.13 |
| | 2V 24 RES OPzV 4245 | 24 | 8 | 4438 | 4248 | 4106 | 3760 | 3357 | 576 | 212 | 799 | 140 | 240 | 18460 | 0.11 |
| Blocks | 6V 4 RES OPzV 250 | 4 | 2 | 263 | 253 | 250 | 233 | 212 | 272 | 205 | 371 | - | 48 | 2260 | 2.70 |
| | 6V 5 RES OPzV 315 | 5 | 2 | 330 | 317 | 313 | 292 | 265 | 380 | 205 | 371 | - | 63 | 2740 | 2.22 |
| | 6V 6 RES OPzV 380 | 6 | 2 | 397 | 381 | 377 | 350 | 318 | 380 | 205 | 371 | - | 70 | 3220 | 1.89 |
| | 12V 1 RES OPzV 65 | 1 | 2 | 65 | 63 | 62 | 58 | 52 | 272 | 205 | 371 | - | 43 | 620 | 19.80 |
| | 12V 2 RES OPzV 125 | 2 | 2 | 130 | 125 | 124 | 115 | 105 | 272 | 205 | 371 | - | 52 | 1240 | 9.90 |
| | 12V 3 RES OPzV 185 | 3 | 2 | 196 | 188 | 186 | 173 | 158 | 380 | 205 | 371 | - | 72 | 1720 | 7.08 |

*Includes installed connectors and shrouds.

DRAWINGS





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

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