

# Reserve Power RES OPzV Batteries

Cyclic applications



SOLAR PV



GENSET



WIND

 **SUNLIGHT**  
Reliable Battery Solutions

# Reserve Power

As a member of a strong and developing business ecosystem, SUNLIGHT relies on its modern infrastructure, continuous innovation and its passion for excellence, to develop and supply reliable battery solutions.

At the core of the company's growth lies its state-of-the-art manufacturing plant in Northern Greece, covering an area of 142.000 m<sup>2</sup>. The company has consistently invested in developing one of the most advanced industrial plants in Europe, running highly specialized production and assembly lines. The plant is fully compliant with the strictest international standards and is certified for Quality, Occupational Health & Safety and Environmental management systems.

The products are developed by SUNLIGHT's R&D team which constantly designs and evaluates new innovative solutions to better meet market needs based on the latest technological trends, industry developments and market feedback.

SUNLIGHT's products and services have gained international recognition by ensuring uninterrupted and reliable operations in a wide range of critical applications for a broad spectrum of industries, such as Telecom and Power networks.

## The complete Reserve Power portfolio consists of:

|              |                      |                        |                        |  |     |
|--------------|----------------------|------------------------|------------------------|--|-----|
| OPzS<br>OPzV | RES OPzS<br>RES OPzV | RES SOPzS<br>RES SOPzV | RES SLT<br>RES SLT GEL | SP SERIES<br>ACCUFORCE<br>SVT/ SVT GEL<br>FRONT ACCESS | OGI |
|--------------|----------------------|------------------------|------------------------|--|-----|

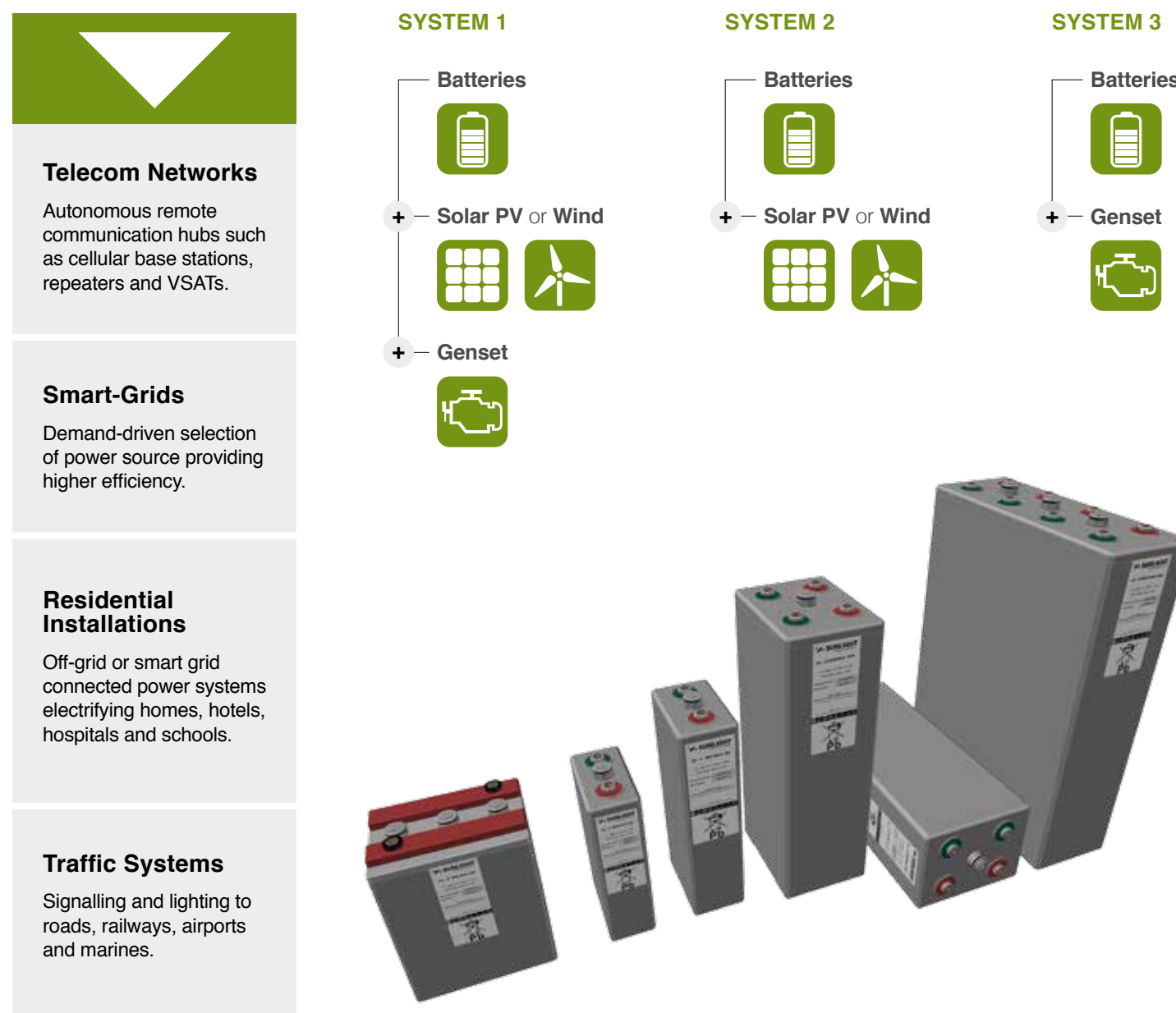
## Valve Regulated Tubular Plate GEL Batteries for Renewable Energy Storage Applications

RES OPzV is a **premium battery range**, developed for applications **requiring regular deep cyclic**. 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.

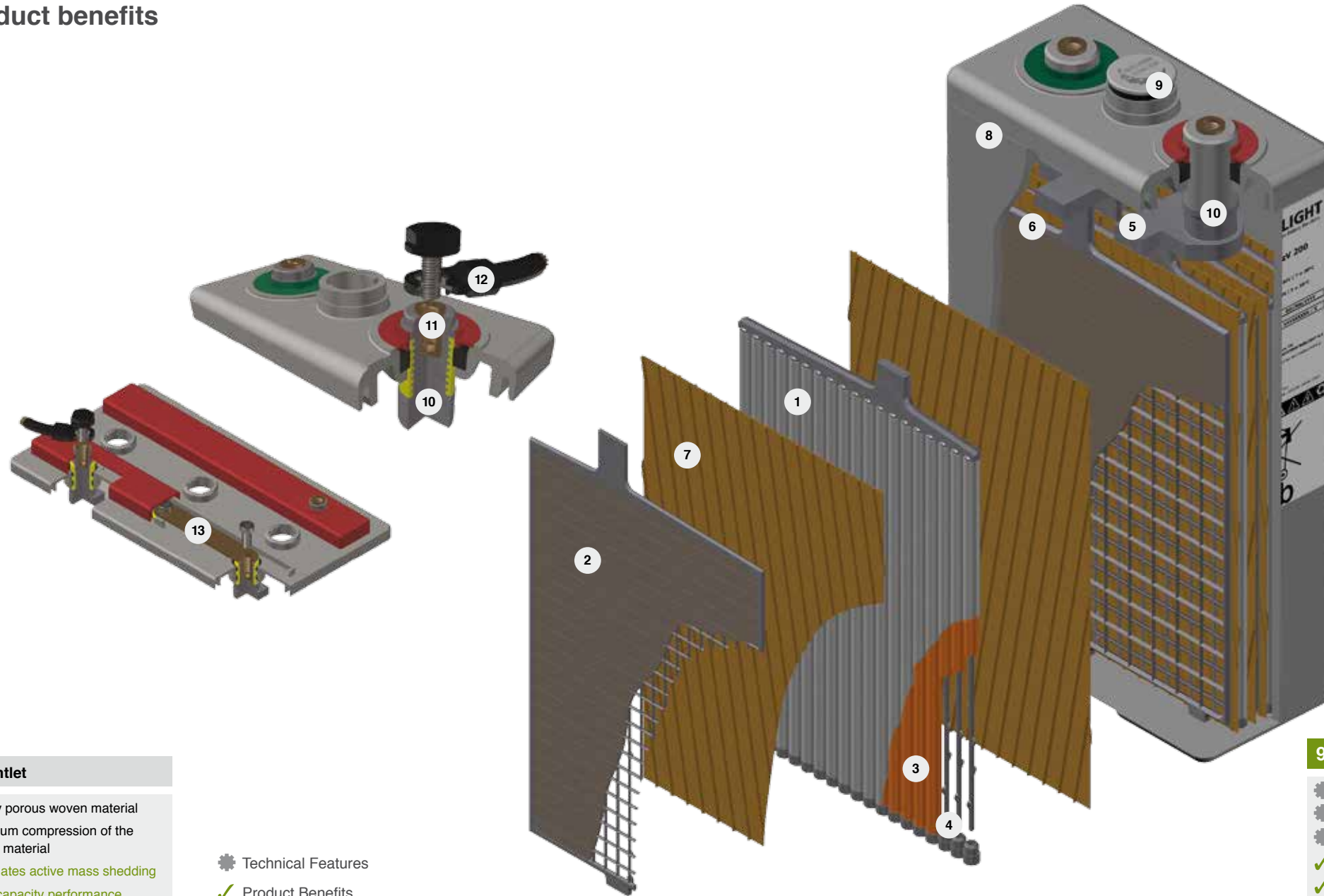
Optimum design, exclusive use of high quality materials, robust construction and state-of-the-art manufacturing processes make RES OPzV batteries the **ideal solution for demanding Renewable Energy Storage applications**.



## Indicative Battery-Based Power Supply Systems



Technical features & product benefits



**1 Positive Plates**

- ✦ Tubular plate design
- ✦ Optimized Lead Calcium Tin Alloy reducing hydrogen evolution
- ✦ Red Lead in-house production by 99,9% 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

**3 Gauntlet**

- ✦ Highly porous woven material
- ✦ Optimum compression of the active material
- ✓ Eliminates active mass shedding
- ✓ High capacity performance

- ✦ Technical Features
- ✓ Product Benefits

**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

**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 polesbridge-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**

- ✦ High porosity grade 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 resin
- ✦ 100% leakage quality control with high precision equipment
- ✓ Long term leakage free operation
- ✓ Unsurpassed mechanical strength
- ✓ Robust and durable battery construction

**9 Valve**

- ✦ Maintenance-free design
- ✦ Pressure relief
- ✦ Integral flame arrestor
- ✓ No water topping-up required
- ✓ 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
- ✓ Available also with taller poles with extra space for measurements

**11 Pole Insert**

- ✦ Brass insert
- ✦ Threaded female M10 terminal posts
- ✓ High conductivity
- ✓ Maximum torque retention

**12 External Intercell Connectors**

- ✦ Flexible
- ✦ Copper
- ✦ Fully insulated
- ✦ Fixed with plastic head safety bolt and probe hole on the top
- ✓ Allow voltage measurements
- ✓ High conductivity
- ✓ Increased safety

**13 Monoblocks' Internal Intercell Connectors**

- ✦ Copper bars premium design
- ✦ Outside of the container connection
- ✓ High conductivity
- ✓ Safe and long operational life

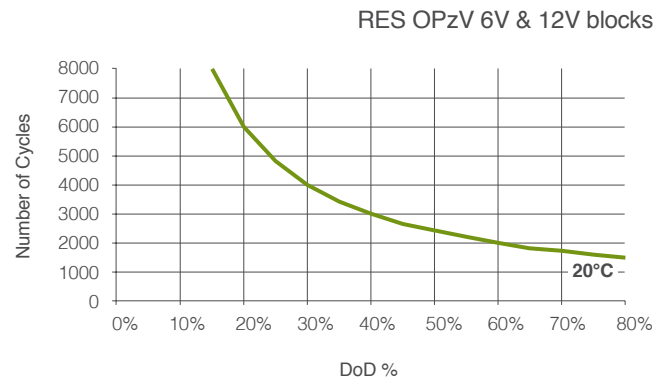
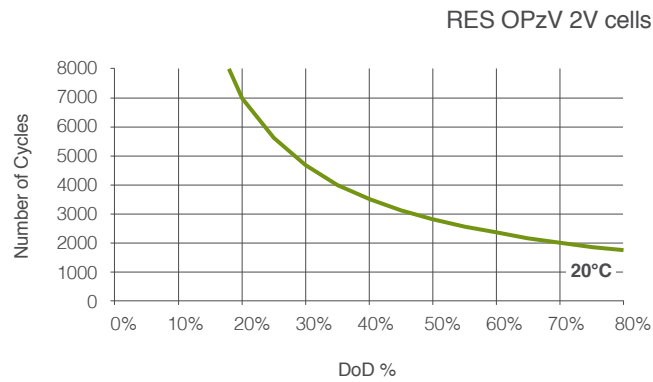


## The ideal energy solution for Renewable Energy Storage applications

### 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.

Number of Cycles vs. DoD



### Outstanding performance and reliability

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

### Reduced maintenance cost

Maintenance-free design without water topping-up requirements.

### 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)

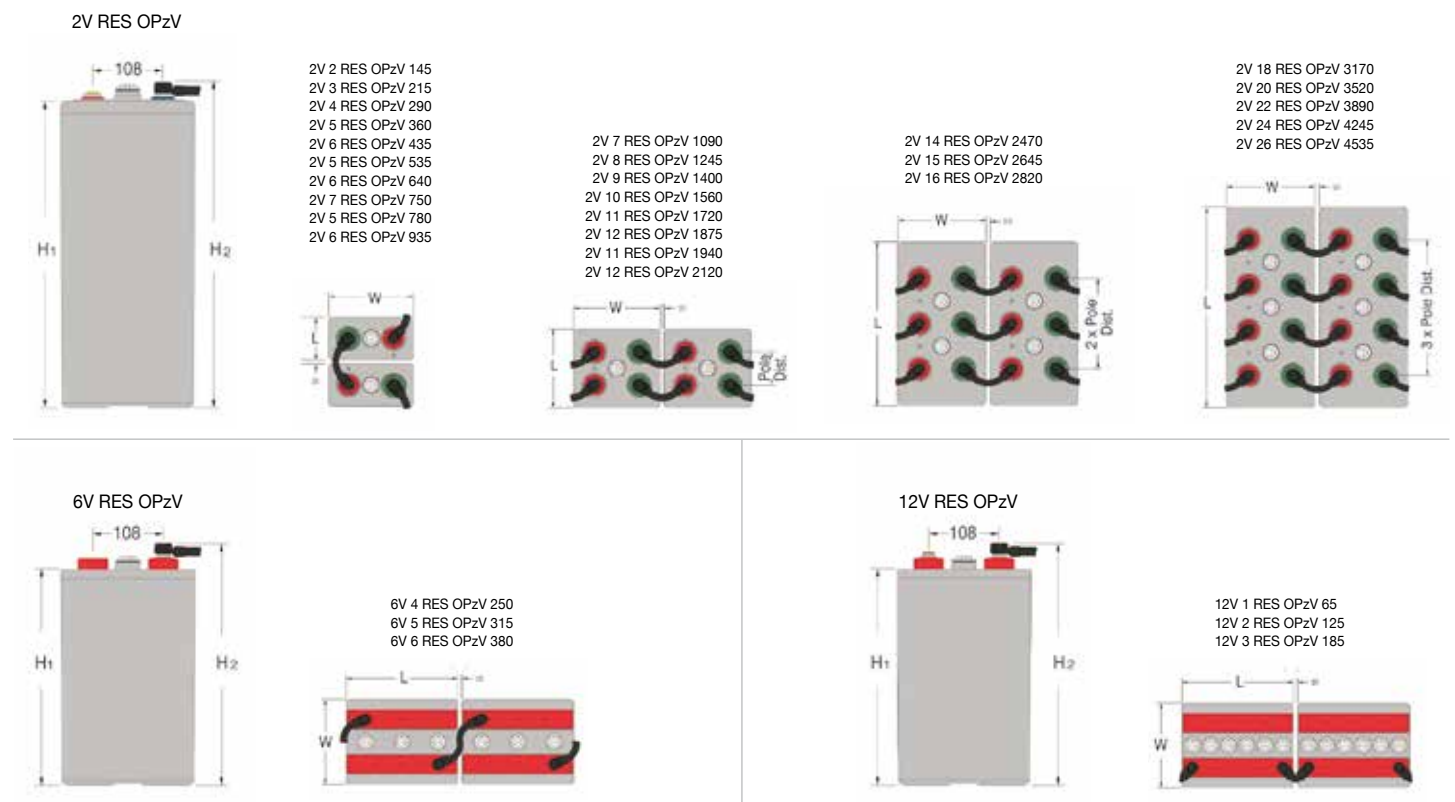
Low cost per cycle. Lifetime value is maximized especially at hybrid systems where using batteries can greatly reduce the Genset daily run time resulting on fuel savings and less CO2 emission.



- "Very Long Life" according to Eurobat 2015 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 **IEC 62485-2** for stationary batteries
- Manufactured in SUNLIGHT's European production facilities, certified with **ISO 9001**, **ISO 14001**, **BS OHSAS 18001**

| Type   | Positive Plates     |           | Number of Poles | Rated Capacity (Ah at 20°C) |               |              |              |              | Dimensions (mm) |       |          |          | Poles Distance (mm) | Weight (kg) | Internal Resistance (mOhm) | Short Circuit Current (A) |       |
|--------|---------------------|-----------|-----------------|-----------------------------|---------------|--------------|--------------|--------------|-----------------|-------|----------|----------|---------------------|-------------|----------------------------|---------------------------|-------|
|        | Number              | Size (Ah) |                 | C240 1.85 Vpc               | C120 1.85 Vpc | C48 1.80 Vpc | C24 1.80 Vpc | C12 1.80 Vpc | Length          | Width | Height 1 | Height 2 |                     |             |                            |                           |       |
| Cells  | 2V 2 RES OPzV 145   | 2         | 50              | 2                           | 150           | 145          | 141          | 129          | 116             | 103   | 206      | 354      | 382                 | -           | 13.6                       | 1.650                     | 1240  |
|        | 2V 3 RES OPzV 215   | 3         |                 | 2                           | 225           | 218          | 211          | 194          | 174             | 103   | 206      | 354      | 382                 | -           | 15.7                       | 1.110                     | 1840  |
|        | 2V 4 RES OPzV 290   | 4         |                 | 2                           | 301           | 290          | 281          | 258          | 232             | 103   | 206      | 354      | 382                 | -           | 18.3                       | 0.830                     | 2460  |
|        | 2V 5 RES OPzV 360   | 5         |                 | 2                           | 376           | 363          | 352          | 323          | 290             | 124   | 206      | 354      | 382                 | -           | 21.8                       | 0.670                     | 3040  |
|        | 2V 6 RES OPzV 435   | 6         |                 | 2                           | 452           | 435          | 423          | 388          | 347             | 145   | 206      | 354      | 382                 | -           | 26.4                       | 0.565                     | 3620  |
|        | 2V 5 RES OPzV 535   | 5         |                 | 2                           | 561           | 536          | 517          | 472          | 420             | 124   | 206      | 471      | 499                 | -           | 30.0                       | 0.570                     | 3580  |
|        | 2V 6 RES OPzV 640   | 6         |                 | 2                           | 675           | 644          | 622          | 567          | 504             | 145   | 206      | 471      | 499                 | -           | 35.3                       | 0.485                     | 4200  |
|        | 2V 7 RES OPzV 750   | 7         |                 | 2                           | 789           | 753          | 727          | 662          | 588             | 166   | 206      | 471      | 499                 | -           | 40.8                       | 0.430                     | 4740  |
|        | 2V 5 RES OPzV 780   | 5         |                 | 2                           | 822           | 781          | 744          | 674          | 597             | 145   | 206      | 643      | 671                 | -           | 43.8                       | 0.530                     | 3850  |
|        | 2V 6 RES OPzV 935   | 6         |                 | 2                           | 986           | 937          | 892          | 809          | 716             | 145   | 206      | 643      | 671                 | -           | 48.2                       | 0.445                     | 4600  |
|        | 2V 7 RES OPzV 1090  | 7         |                 | 4                           | 1147          | 1091         | 1039         | 942          | 835             | 191   | 210      | 644      | 672                 | 80          | 61.2                       | 0.365                     | 5600  |
|        | 2V 8 RES OPzV 1245  | 8         |                 | 4                           | 1311          | 1247         | 1187         | 1077         | 954             | 191   | 210      | 644      | 672                 | 80          | 65.5                       | 0.325                     | 6300  |
|        | 2V 9 RES OPzV 1400  | 9         |                 | 4                           | 1477          | 1404         | 1337         | 1212         | 1074            | 233   | 210      | 646      | 674                 | 110         | 75.9                       | 0.295                     | 6900  |
|        | 2V 10 RES OPzV 1560 | 10        |                 | 4                           | 1641          | 1560         | 1485         | 1347         | 1193            | 233   | 210      | 646      | 674                 | 110         | 80.4                       | 0.265                     | 7700  |
|        | 2V 11 RES OPzV 1720 | 11        |                 | 4                           | 1811          | 1720         | 1637         | 1483         | 1313            | 275   | 210      | 645      | 673                 | 140         | 90.8                       | 0.245                     | 8350  |
|        | 2V 12 RES OPzV 1875 | 12        |                 | 4                           | 1976          | 1877         | 1786         | 1618         | 1432            | 275   | 210      | 645      | 673                 | 140         | 95.1                       | 0.225                     | 9050  |
|        | 2V 11 RES OPzV 1940 | 11        |                 | 4                           | 2029          | 1943         | 1879         | 1722         | 1538            | 275   | 210      | 796      | 824                 | 140         | 105.0                      | 0.230                     | 8850  |
|        | 2V 12 RES OPzV 2120 | 12        |                 | 4                           | 2214          | 2120         | 2050         | 1878         | 1678            | 275   | 210      | 796      | 824                 | 140         | 110.1                      | 0.210                     | 9700  |
|        | 2V 14 RES OPzV 2470 | 14        |                 | 6                           | 2580          | 2471         | 2390         | 2190         | 1957            | 399   | 214      | 771      | 799                 | 2x110       | 146.0                      | 0.180                     | 11350 |
|        | 2V 15 RES OPzV 2645 | 15        |                 | 6                           | 2764          | 2647         | 2561         | 2346         | 2097            | 399   | 214      | 771      | 799                 | 2x110       | 151.0                      | 0.167                     | 12200 |
|        | 2V 16 RES OPzV 2820 | 16        |                 | 6                           | 2949          | 2824         | 2731         | 2503         | 2237            | 399   | 214      | 771      | 799                 | 2x110       | 156.1                      | 0.157                     | 13000 |
|        | 2V 18 RES OPzV 3170 | 18        |                 | 8                           | 3310          | 3171         | 3071         | 2814         | 2516            | 487   | 212      | 769      | 797                 | 3x110       | 185.2                      | 0.137                     | 14900 |
|        | 2V 20 RES OPzV 3520 | 20        |                 | 8                           | 3678          | 3523         | 3412         | 3127         | 2796            | 487   | 212      | 769      | 797                 | 3x110       | 195.3                      | 0.123                     | 16600 |
|        | 2V 22 RES OPzV 3890 | 22        |                 | 8                           | 4068          | 3894         | 3764         | 3447         | 3077            | 576   | 212      | 771      | 799                 | 3x140       | 221.2                      | 0.115                     | 17750 |
|        | 2V 24 RES OPzV 4245 | 24        |                 | 8                           | 4438          | 4248         | 4106         | 3760         | 3357            | 576   | 212      | 771      | 799                 | 3x140       | 231.4                      | 0.108                     | 18900 |
|        | 2V 26 RES OPzV 4535 | 26        |                 | 8                           | 4747          | 4536         | 4405         | 4026         | 3586            | 576   | 212      | 771      | 799                 | 3x140       | 241.5                      | 0.103                     | 19800 |
| Blocks | 6V 4 RES OPzV 250   | 4         | 50              | 2                           | 263           | 253          | 250          | 233          | 212             | 272   | 205      | 332      | 372                 | -           | 55.2                       | 2.70                      | 2270  |
|        | 6V 5 RES OPzV 315   | 5         |                 | 2                           | 330           | 317          | 313          | 292          | 265             | 380   | 205      | 332      | 372                 | -           | 62.8                       | 2.22                      | 2760  |
|        | 6V 6 RES OPzV 380   | 6         |                 | 2                           | 397           | 381          | 377          | 350          | 318             | 380   | 205      | 332      | 372                 | -           | 69.0                       | 1.89                      | 3240  |
|        | 12V 1 RES OPzV 65   | 1         |                 | 2                           | 65            | 63           | 62           | 58           | 52              | 272   | 205      | 332      | 372                 | -           | 43.8                       | 19.01                     | 640   |
|        | 12V 2 RES OPzV 125  | 2         |                 | 2                           | 130           | 125          | 124          | 115          | 105             | 272   | 205      | 332      | 372                 | -           | 50.5                       | 9.50                      | 1290  |
|        | 12V 3 RES OPzV 185  | 3         |                 | 2                           | 196           | 188          | 186          | 173          | 158             | 380   | 205      | 332      | 372                 | -           | 73.3                       | 6.80                      | 1800  |

Height 2 includes installed connectors and bolts.  
All dimensions and weights shown are subject to manufacturing tolerances.





Manufactured in Europe  
delivered in more than **100** countries



Manufacturing Plant in Xanthi, Northern Greece

SYSTEMS SUNLIGHT reserves the right to change or revise without notice any information or detail given in this publication

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