

# Reserve Power RES OPzS 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.

Our manufacturing plant, located in Xanthi, Northern Greece, is a core element of our dynamic growth. We have systematically invested in the development of **one of the most modern industrial units**, in accordance with the strictest international standards. It covers **200.000m<sup>2</sup>**, with indoors areas of more than 60.000m<sup>2</sup>.

The company has consistently invested in developing one of **the most advanced industrial plants in the world**, running highly specialized production and assembly lines. The plant is fully compliant with the strict-

est international standards and is certified for Quality, Occupational Health & Safety and Environmental management systems.

The products are developed by SUNLIGHT 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 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:



## Vented Tubular Plate Batteries for Renewable Energy Applications

RES OPzS is a **premium battery 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 the **ideal solution for demanding Renewable Energy Storage applications**.



Telecom Networks



Residential Installations



Traffic Signalling



Smart-Grids

## Indicative Battery-Based Power Supply Systems

▼

**Telecom Networks**

Autonomous remote communication hubs such as cellular base stations, repeaters and VSATs.

**Smart-Grids**

Demand-driven selection of power source providing higher efficiency.

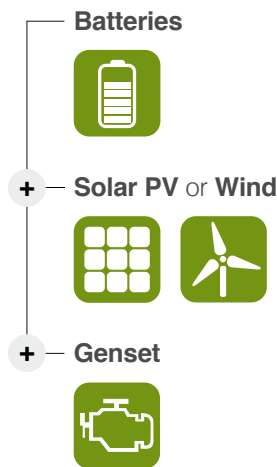
**Residential Installations**

Off-grid or smart grid connected power systems electrifying homes, hotels, hospitals and schools.

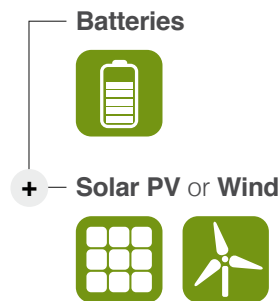
**Traffic Systems**

Signalling and lighting to roads, railways, airports and marines.

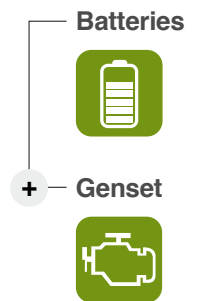
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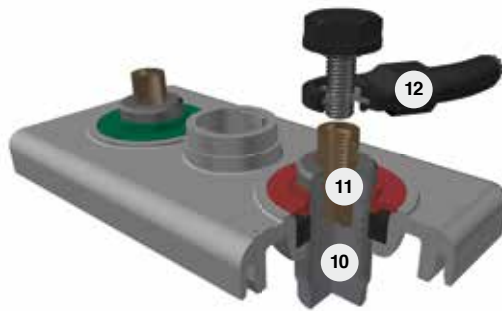
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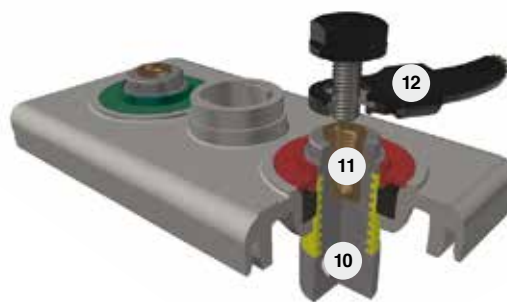
### SYSTEM 3



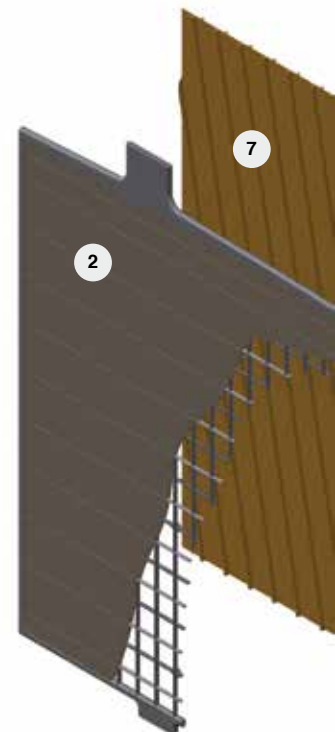
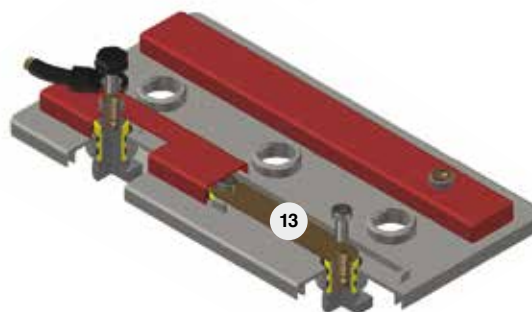
## Technical features & product benefits



*US pole (optional)  
(different codes for US pole cells)*



*Standard pole*



### 1 Positive Plates

- ⚙️ Tubular plate design
- ⚙️ Special low antimony lead alloy ( $\leq 1.65\%$  Sb)
- ⚙️ Red Lead in-house production by 99.99% Primary 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

- ⚙️ Technical Features
- ✓ Product Benefits

### 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
- ✓ Increased tolerance even in cases of poor charging conditions

### 3 Gauntlet

- ⚙️ Highly microporous material
- ⚙️ Fine pore structure
- ⚙️ Low electrical resistance
- ✓ Effective active material retention
- ✓ Eliminates active mass shedding

### 4 Bottom Bar

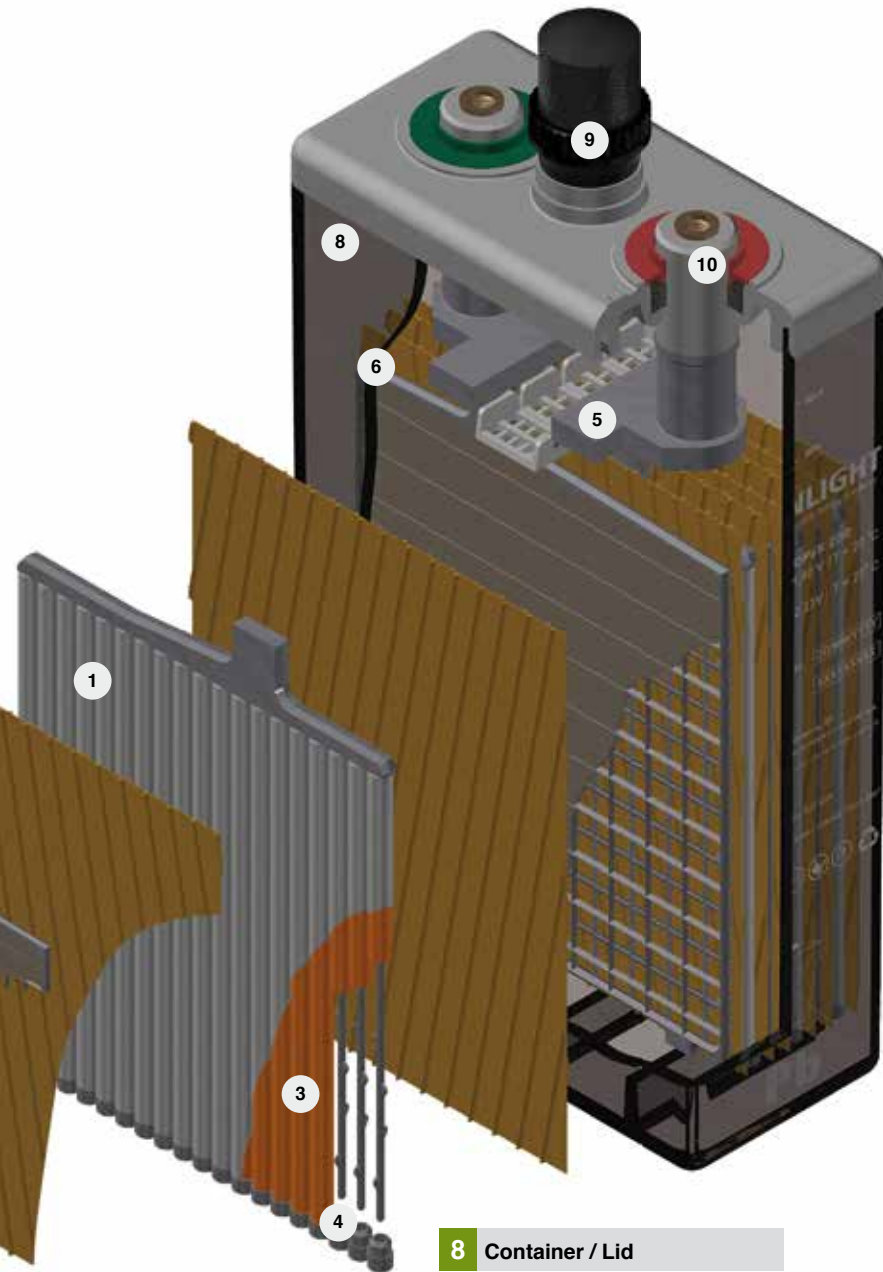
- ⚙️ Ultrasonic welding
- ✓ Secured fit to the gauntlet
- ✓ Long battery life

### 5 Pole Bridge

- ⚙️ Welding with high quality alloy
- ⚙️ Optimized design
- ✓ Increased robustness and durability
- ✓ Consistent and uniform polesbridge-plate block connection

### 6 Electrolyte

- ⚙️ High purity sulphuric acid with nominal density of 1.24 +/- 0,01 kg/l (20°C/68°F)
- ✓ Low self discharge rates
- ✓ Excellent performance on deep discharges



### 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

- ⚙ High impact resistant, transparent SAN (Styrene Acrylonitrile) for the container
- ⚙ Robust ABS (Acrylonitrile Butadien Styrene) Material for the lid
- ⚙ Optionally flame retardant (Class V0) material
- ⚙ Sealing between container - lid with polyurethane resin
- ⚙ 100% leakage quality control with high precision equipment
- ✓ Easy visual electrolyte level monitoring
- ✓ Long term leakage free operation
- ✓ Unsurpassed mechanical strength
- ✓ Robust and durable battery construction

### 9 Vent Plugs

- ⚙ Ceramic plugs available as an option
- ⚙ Low maintenance design
- ⚙ Flame arresting
- ⚙ Ceramic funnel plugs and recombination plugs also available as an option
- ✓ 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
- ✓ 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 bold and probe hole on the top
- ✓ High conductivity
- ✓ Maximum torque retention

### 13 Monoblocks' Internal Intercell Connectors

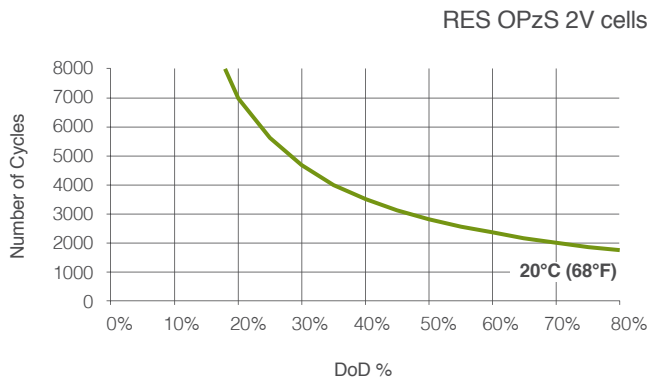
- ⚙ Copper bars premium design
- ⚙ Outside of the container connection
- ✓ High conductivity
- ✓ Safe and long operational life

## The ideal energy solution for Renewable Energy Storage applications

### Long cycle life

Tubular positive plates, 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 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.

### Minimum maintenance

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

### Space optimization

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

### Flexibility

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

### 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, batteries in filled and charged or dry charged state with all the necessary accessories. Extensive range of adding value products and services.

### 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.



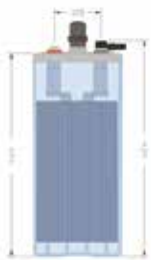
- Compliant with **IEC 61427** requirements for photovoltaic energy systems
- Fully compliant with **IEC 60896-11** requirements for vented lead-acid batteries
- Full conformity to **DIN 40736-1** specifications for OPzS cells and **DIN 40737-3** for OPzS blocks
- Compliant with the safety requirements of **IEC 62485-2** for stationary batteries
- Manufactured at SUNLIGHT European production facilities, certified with **ISO 9001, ISO 14001, BS OHSAS 18001**

RES OPzS model	Rated Capacity (Ah) at 20°C (68°F)					Dimensions mm (in)				Weight kg (lb)		Internal Resistance (mOhm)	Short Circuit Current (A)	
	C240 1.85 Vpc	C120 1.85 Vpc	C48 1.80 Vpc	C24 1.80 Vpc	C12 1.80 Vpc	Length	Width	Height <sub>1</sub>	Height <sub>2</sub>	Wet	Dry			
<b>Cells</b>	2V 2 RES OPzS 185	196	187	172	153	131	103 (4.06)	206 (8.11)	355 (13.98)	383 (15.08)	15.5 (34.2)	8.2 (18.1)	1.430	1420
	2V 3 RES OPzS 260	273	262	244	217	188	103 (4.06)	206 (8.11)	355 (13.98)	383 (15.08)	17.0 (37.5)	10.6 (23.4)	0.950	2120
	2V 4 RES OPzS 300	310	300	285	256	224	103 (4.06)	206 (8.11)	355 (13.98)	383 (15.08)	17.5 (38.6)	12.8 (28.2)	0.740	2720
	2V 5 RES OPzS 375	391	379	359	323	281	124 (4.88)	206 (8.11)	355 (13.98)	383 (15.08)	21.2 (46.7)	15.3 (33.7)	0.590	3420
	2V 6 RES OPzS 450	469	454	431	387	338	145 (5.71)	206 (8.11)	355 (13.98)	383 (15.08)	24.9 (54.9)	18.0 (39.7)	0.510	3940
	2V 5 RES OPzS 550	574	553	527	474	413	124 (4.88)	206 (8.11)	471 (18.54)	499 (19.65)	28.6 (63.1)	20.6 (45.4)	0.540	3750
	2V 6 RES OPzS 660	688	662	630	567	494	145 (5.71)	206 (8.11)	471 (18.54)	499 (19.65)	33.5 (73.9)	24.2 (53.4)	0.460	4400
	2V 7 RES OPzS 750	779	750	717	646	564	166 (6.54)	206 (8.11)	471 (18.54)	499 (19.65)	38.5 (84.9)	27.6 (60.8)	0.410	4950
	2V 5 RES OPzS 900	947	904	845	748	639	145 (5.71)	206 (8.11)	646 (25.43)	674 (26.54)	42.3 (93.3)	29.3 (64.6)	0.510	3950
	2V 6 RES OPzS 965	1006	966	916	816	703	145 (5.71)	206 (8.11)	646 (25.43)	674 (26.54)	46.5 (102.5)	33.7 (74.3)	0.430	4700
	2V 7 RES OPzS 1230	1286	1230	1154	1024	877	191 (7.52)	210 (8.27)	646 (25.43)	674 (26.54)	59.4 (131.0)	42.3 (93.3)	0.360	5600
	2V 8 RES OPzS 1275	1330	1278	1213	1083	934	191 (7.52)	210 (8.27)	646 (25.43)	674 (26.54)	63.5 (140.0)	46.7 (103.0)	0.310	6500
	2V 9 RES OPzS 1480	1547	1484	1403	1250	1076	233 (9.17)	210 (8.27)	646 (25.43)	674 (26.54)	73.5 (162.0)	52.3 (115.3)	0.280	7250
	2V 10 RES OPzS 1590	1656	1592	1511	1349	1165	233 (9.17)	210 (8.27)	646 (25.43)	674 (26.54)	77.7 (171.3)	56.7 (125.0)	0.250	8100
	2V 11 RES OPzS 1885	1974	1888	1776	1576	1350	275 (10.83)	210 (8.27)	646 (25.43)	674 (26.54)	87.7 (193.3)	64.6 (143.7)	0.240	8450
	2V 12 RES OPzS 1905	1986	1908	1810	1614	1391	275 (10.83)	210 (8.27)	646 (25.43)	674 (26.54)	91.9 (202.6)	66.8 (147.3)	0.220	9250
	2V 11 RES OPzS 2285	2369	2286	2173	1957	1698	275 (10.83)	210 (8.27)	797 (31.38)	825 (32.48)	108.9 (240.1)	77.0 (169.8)	0.230	8800
	2V 12 RES OPzS 2225	2296	2226	2142	1944	1701	275 (10.83)	210 (8.27)	797 (31.38)	825 (32.48)	114.0 (251.3)	82.4 (181.7)	0.220	9200
	2V 14 RES OPzS 2765	2868	2769	2639	2381	2069	399 (15.71)	214 (8.43)	772 (30.39)	800 (31.50)	145.8 (321.4)	100.3 (221.1)	0.190	10650
	2V 15 RES OPzS 2920	3018	2921	2797	2531	2208	399 (15.71)	214 (8.43)	772 (30.39)	800 (31.50)	150.9 (332.7)	105.9 (233.5)	0.170	11900
2V 16 RES OPzS 2970	3064	2973	2861	2600	2279	399 (15.71)	214 (8.43)	772 (30.39)	800 (31.50)	156.1 (344.1)	111.4 (245.6)	0.156	12950	
2V 18 RES OPzS 3780	3916	3780	3589	3236	2811	487 (19.17)	212 (8.35)	772 (30.39)	800 (31.50)	183.7 (405.0)	128.6 (283.5)	0.137	14750	
2V 20 RES OPzS 4075	4217	4076	3885	3510	3057	487 (19.17)	212 (8.35)	772 (30.39)	800 (31.50)	194.0 (427.7)	139.5 (307.5)	0.122	16550	
2V 22 RES OPzS 4455	4615	4457	4247	3833	3335	576 (22.68)	212 (8.35)	772 (30.39)	800 (31.50)	219.6 (484.1)	153.7 (338.9)	0.114	17700	
2V 24 RES OPzS 4620	4770	4620	4430	4014	3508	576 (22.68)	212 (8.35)	772 (30.39)	800 (31.50)	229.8 (506.6)	164.9 (363.5)	0.105	19250	
2V 26 RES OPzS 4730	4869	4733	4564	4156	3656	576 (22.68)	212 (8.35)	772 (30.39)	800 (31.50)	240.1 (529.3)	175.8 (387.6)	0.098	20600	
<b>Blocks</b>	6V 3 RES OPzS 240	251	242	231	209	184	233 (9.17)	224 (8.82)	345 (13.58)	394 (15.51)	41.1 (90.6)	30.5 (67.2)	3.18	1900
	6V 4 RES OPzS 280	293	284	275	251	223	272 (10.71)	205 (8.07)	332 (13.07)	375 (14.76)	46.4 (102.3)	34.1 (75.2)	2.52	2420
	6V 5 RES OPzS 385	403	389	373	338	298	380 (14.96)	205 (8.07)	332 (13.07)	375 (14.76)	59.8 (131.8)	42.0 (92.6)	2.13	2860
	6V 6 RES OPzS 405	422	408	398	364	323	380 (14.96)	205 (8.07)	332 (13.07)	375 (14.76)	66.8 (147.3)	49.3 (108.7)	1.86	3260
	12V 1 RES OPzS 85	90	86	81	73	65	272 (10.71)	205 (8.07)	332 (13.07)	375 (14.76)	41.0 (90.4)	27.8 (61.3)	17.20	700
	12V 2 RES OPzS 130	137	132	128	118	106	272 (10.71)	205 (8.07)	332 (13.07)	375 (14.76)	48.4 (106.7)	37.0 (81.6)	8.61	1400
12V 3 RES OPzS 190	199	191	186	172	155	380 (14.96)	205 (8.07)	332 (13.07)	375 (14.76)	68.7 (151.5)	52.2 (115.1)	6.09	2000	

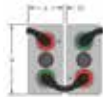
Height<sub>2</sub> includes installed connectors and bolts.

All dimensions and weights shown are subject to manufacturing tolerances.

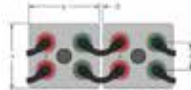
### 2V RES OPzS



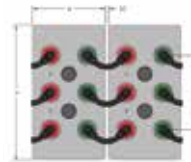
- 2V 2 RES OPzS 185
- 2V 3 RES OPzS 260
- 2V 4 RES OPzS 300
- 2V 5 RES OPzS 375
- 2V 6 RES OPzS 450
- 2V 5 RES OPzS 550
- 2V 6 RES OPzS 660
- 2V 7 RES OPzS 750
- 2V 5 RES OPzS 900
- 2V 6 RES OPzS 965



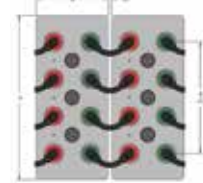
- 2V 7 RES OPzS 1230
- 2V 8 RES OPzS 1275
- 2V 9 RES OPzS 1480
- 2V 10 RES OPzS 1590
- 2V 11 RES OPzS 1885
- 2V 12 RES OPzS 1905
- 2V 11 RES OPzS 2285
- 2V 12 RES OPzS 2225



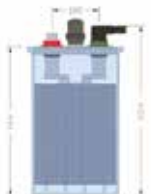
- 2V 14 RES OPzS 2765
- 2V 15 RES OPzS 2920
- 2V 16 RES OPzS 2970



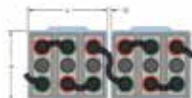
- 2V 18 RES OPzS 3780
- 2V 20 RES OPzS 4075
- 2V 22 RES OPzS 4455
- 2V 24 RES OPzS 4620
- 2V 26 RES OPzS 4730



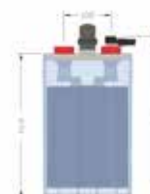
### 6V 3 RES OPzS 240



- 6V 3 RES OPzS 240



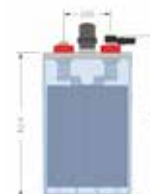
### 6V RES OPzS



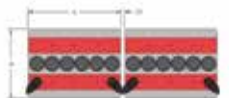
- 6V 4 RES OPzS 280
- 6V 5 RES OPzS 385
- 6V 6 RES OPzS 405



### 12V RES OPzS



- 12V 1 RES OPzS 85
- 12V 2 RES OPzS 130
- 12V 3 RES OPzS 190



# Manufactured in Europe Delivered in more than **100** countries



[www.systems-sunlight.com](http://www.systems-sunlight.com)

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**Recycling Plant** Industrial Area of Komotini | 691 00 Komotini | Greece | EU

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