

# SPA AGM VRLA batteries for Stationary Applications

[norwatt@norwatt.es](mailto:norwatt@norwatt.es)

[www.norwatt.es](http://www.norwatt.es)



 **SUNLIGHT**  
Reliable Battery Solutions

## SPA OVERVIEW

### Valve Regulated AGM batteries

The SPA range of SUNLIGHT Valve Regulated Lead Acid batteries has been developed as general purpose batteries, designed to provide reliable performance in a wide field of applications. The SUNLIGHT SPA batteries respond to the needs of security and signalling systems market, low power UPS, telecommunications, information technology and emergency power supply.

The Valve Regulated Lead Acid (VRLA) battery is a rechargeable battery type with a safety valve, which allows the internal pressure to be released in case of overcharge. This battery type is maintenance free as there is no need for topping-up water or electrolyte during the entire service life.

The SUNLIGHT SPA range of VRLA batteries features models with capacity up to 28Ah, offering a dense range of performances and dimensions also available with different types of terminals and flame retardant cases.

#### APPLICATIONS

- Security and fire alarm systems
- Low power UPS systems
- Emergency Lighting systems
- Signaling systems
- Communications and electric equipment
- Broadcasting systems
- Robots and factory automation control equipment
- Automation boards for elevators
- Electronic cash registers



#### CERTIFIED QUALITY

- The SUNLIGHT SPA batteries are recognized by UL (File No MH18852).
- The SUNLIGHT Manufacturing Plant is certified according to ISO 9001:2000 and ISO 14001:2004.
- Selected models of the SUNLIGHT SPA batteries are approved by VDS.
- As a member of EUROBAT organization SYSTEMS SUNLIGHT S.A. closely monitors the latest developments in the battery industry.
- Products are 100% tested and checked prior to shipment.
- The SUNLIGHT SPA batteries are completely recyclable.

#### QUALITY FEATURES & PRODUCT BENEFITS

##### High Performance

With low internal resistance and efficient discharge characteristics, the SUNLIGHT SPA batteries can be applied to many fields, both in cycle and stand by use.

##### Maintenance Free

During the service life, there is no need to check the level of the electrolyte or to add water. The gases produced during electrolysis are almost completely recombined to water (up to 99%) through an effective reaction between hydrogen and oxygen.

##### Safety Valve Design

Excessive gas produced by overcharge or an incorrect charging method is released through the safety valve, which detects rising internal pressure and allows gas to exit; then automatically reseals.

##### Separator Technology

The Absorbent Glass Mat (AGM) separator, used in the SUNLIGHT batteries, is a highly porous material, which achieves maximization of oxygen diffusion and facilitates the reaction of active materials in the plates. The separator also maintains a constant distance between the positive and the negative plates and immobilizes the electrolyte, so that the possibility of acid leakage is minimized.

##### Performance on Wide Temperature Range

The SUNLIGHT SPA batteries operate within a wide range of temperature while the optimum temperature for the operation of the battery is 20°C – 25°C.

##### Low Self-discharge Rate

Using a lead / calcium grid alloy, the self-discharge is minimum. The battery can be stored for 9 months under normal conditions (20°C – 25°C) with no permanent effect on the capacity or the expected service life.

##### Leak and Spill Proof Container

The construction of the SUNLIGHT battery guarantees that no electrolyte leakage can occur from the terminals or case. A highly resistant plastic material is used, available in either standard ABS (UL94 HB) or flame retardant type (UL94 V-0).

##### Float Service Life

The nominal service life is up to 5 years in float / standby applications (20°C).

##### Multi-position Usage

The sealed construction of the battery allows perfect operation in any position (vertical or horizontal but not completely inverted position).

The ideal energy solution for stationary applications

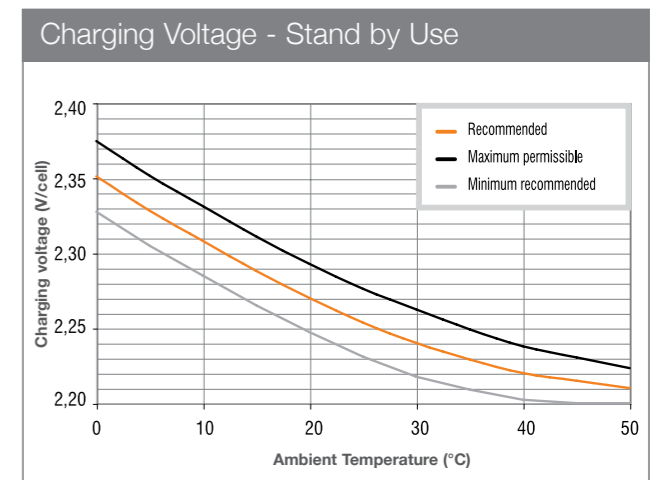
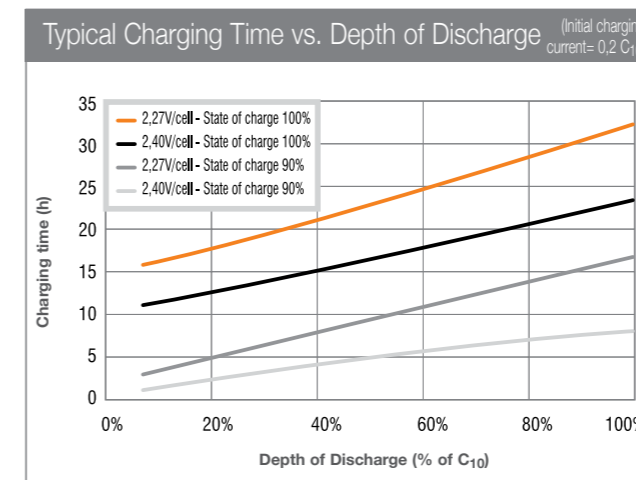
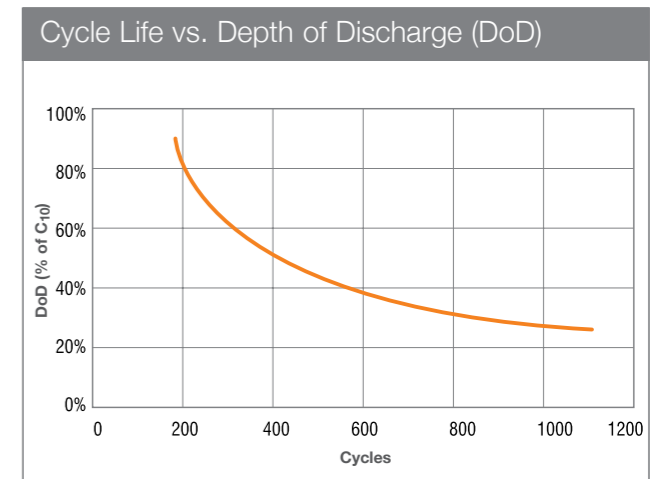
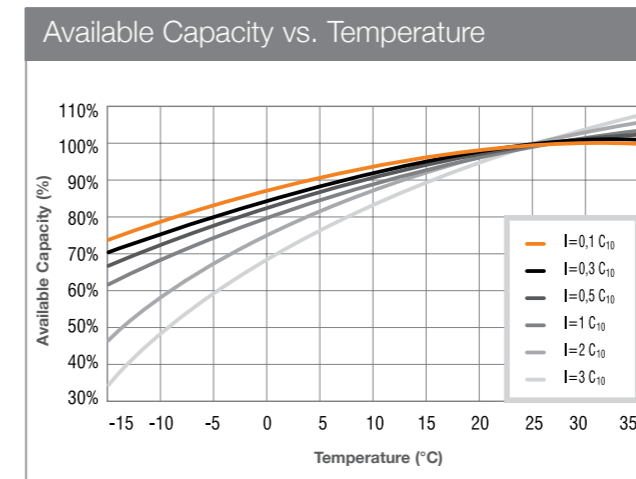
#### FEATURES OF SPA RANGE

- Capacity Range: 0,7Ah to 28Ah
- Design Life: up to 5 years at 20°C
- Classified as: Standard Commercial, according to EUROBAT guide 1999
- Configurations: 4V, 6V, 8V and 12V blocks available

**PRODUCT RANGE**

Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah) at 1.80 Vpc (25°)		Length (mm)	Width (mm)	Height (h) (mm)	Height (H) (mm)	Typical Weight (kg)	Terminal Position	Terminal Type	Maximum Current (25°)		Internal Resistance (mΩ)
		20h	10h								Charging (A)	Discharging (A)	
SPA 4 - 9.5	4	9.3	8.7	102	44	95	101	1.10	A	F1	3.80	142.5	8
SPA 6 - 1.3	6	1.3	1.2	97	24	52	58	0.31	A	F1	0.48	18.0	50
SPA 6 - 2.5	6	2.7	2.5	66	33	97	104	0.58	C	F1	1.12	42.0	25
SPA 6 - 2.8	6	2.7	2.6	66	33	97	104	0.58	C	F1	1.12	42.0	25
SPA 6 - 3.2	6	3.1	3.0	134	34	61	67	0.66	A	F1	1.28	48.0	25
SPA 6 - 4.5	6	4.9	4.5	70	47	101	107	0.77	C	F1	2.0	75.0	27
SPA 6 - 7	6	6.9	6.3	151	34	94	100	1.20	A	F1	2.8	105	15
SPA 6 - 8	6	7.8	7.5	98	56	117	117	1.69	E	F1	3.2	120	11
SPA 6 - 10	6	9.8	9.1	151	50	94	100	1.67	A	F1	4.0	150	15
SPA 6 - 12	6	11.7	11.0	151	50	94	100	1.85	A	F1	4.8	180	10
SPA 8 - 3.2	8	3.1	3.0	134	36	63	69	0.76	D	F1	1.3	48.0	32
SPA 12 - 0.7	12	0.7	0.7	96	25	62	62	0.34	-	F5	0.3	12.0	250
SPA 12 - 1.3	12	1.3	1.2	97	43	52	58	0.53	D	F1	0.5	18.0	50
SPA 12 - 1.9	12	2.1	1.9	178	35	61	67	0.99	A	F1	0.9	34.5	60
SPA 12 - 2C	12	1.7	1.6	144	24	65	65	0.60	G	F4	0.6	24.0	50
SPA 12 - 2.3	12	2.3	2.1	178	35	61	67	0.99	A	F1	0.9	34.5	60
SPA 12 - 2.3C	12	2.1	1.9	182	24	61	61	0.67	G	F4	0.9	35.0	80
SPA 12 - 3.3	12	3.2	3.0	134	67	61	67	1.32	D	F1	1.3	48.0	68
SPA 12 - 5	12	4.9	4.6	90	70	101	107	1.80	A	F1	2.0	75.0	42
SPA 12 - 6	12	5.9	5.7	151	52	94	99	2.18	F	F1	2.4	90.0	25
SPA 12 - 7	12	6.9	6.4	151	65	94	100	2.37	F	F1	2.8	105	30
SPA 12 - 7.2	12	7.0	6.5	151	65	94	100	2.37	F	F1	2.8	105	30
SPA 12 - 9	12	8.8	8.2	151	65	94	100	2.80	F	F1	3.6	135	18
SPA 12 - 10	12	9.8	9.1	151	98	95	101	3.30	F	F1	4.0	150	30
SPA 12 - 10S	12	9.8	9.1	151	65	111	117	3.32	F	F1	4.0	150	18
SPA 12 - 12	12	11.7	11.3	151	98	95	101	3.74	F	F1	4.8	180	19
SPA 12 - 18	12	17.6	16.5	181	77	167	167	5.50	B	F2	6.8	255	14
SPA 12 - 26	12	25.5	23.2	166	175	125	125	8.15	B	F2	9.6	300	10
SPA 12 - 28	12	27.4	25.6	165	125	175	182	9.30	B	F3	11.2	310	8

**DIAGRAMS**



**DRAWINGS**

**Case Dimensions**

**Terminal Positions**

Side View

**F1**

F1: Faston Tab 4,8

**F2**

F2: Bold Fastened Terminal

**F3**

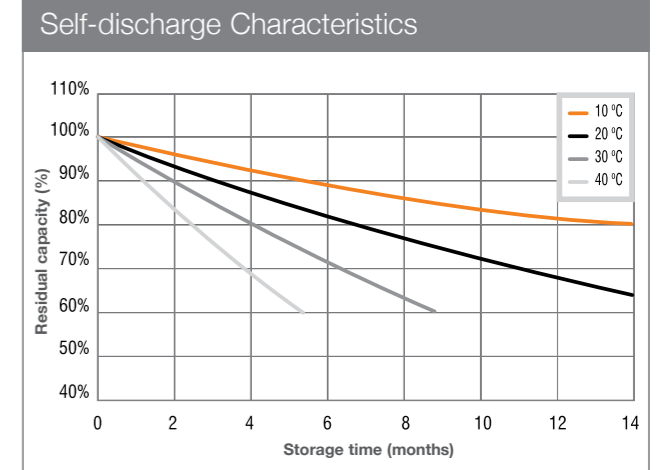
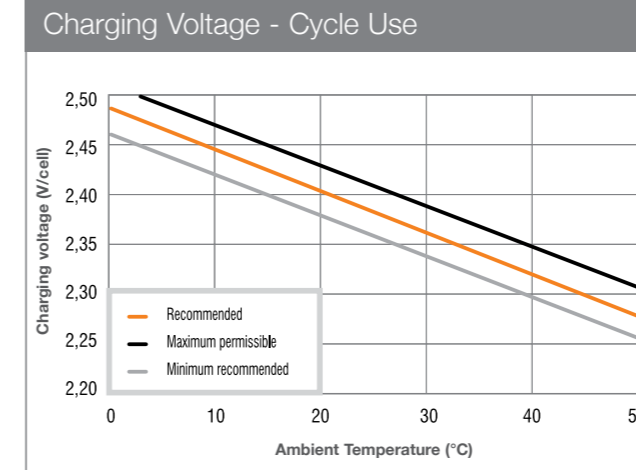
F3: Bold Fastened Terminal

**F4**

F4: Terminal

**F5**

F5: Wire and connector



Temperature	Shelf Life
0 - 20°C	12 months
21 - 30°C	7 months
31 - 40°C	4 months
41 - 50°C	2,5 months

norwatt@norwatt.es

www.norwatt.es

### Performance Data

Discharge Constant Current at 25°C (Amperes)

End Voltage 1.85 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPA 4-9.5	19.20	14.77	9.11	6.77	5.45	3.18	2.29	1.50	0.83	0.45
SPA 6-1.3	2.51	1.91	1.18	0.88	0.71	0.42	0.30	0.20	0.11	0.06
SPA 6-2.5	5.20	4.01	2.49	1.86	1.50	0.89	0.65	0.43	0.24	0.13
SPA 6-2.8	5.51	4.23	2.61	1.95	1.57	0.92	0.67	0.44	0.25	0.13
SPA 6-3.2	6.39	4.91	3.03	2.26	1.83	1.07	0.77	0.51	0.29	0.15
SPA 6-4.5	9.27	7.14	4.44	3.32	2.69	1.59	1.16	0.77	0.43	0.23
SPA 6-7	13.94	10.69	6.58	4.89	3.94	2.30	1.66	1.09	0.61	0.33
SPA 6-8	15.34	11.87	7.41	5.54	4.50	2.65	1.92	1.28	0.72	0.38
SPA 6-10	19.42	14.89	9.21	6.86	5.56	3.27	2.37	1.57	0.87	0.47
SPA 6-12	23.14	17.88	11.12	8.29	6.71	3.95	2.85	1.88	1.05	0.57
SPA 8-3.2	6.27	4.82	2.99	2.23	1.81	1.06	0.77	0.51	0.29	0.15
SPA 12-0.7	1.36	1.04	0.65	0.49	0.40	0.24	0.17	0.12	0.07	0.03
SPA 12-1.3	2.50	1.91	1.18	0.88	0.72	0.42	0.31	0.20	0.11	0.06
SPA 12-1.9	3.85	2.96	1.84	1.38	1.12	0.67	0.49	0.32	0.18	0.10
SPA 12-2C	3.10	2.39	1.50	1.13	0.92	0.55	0.40	0.27	0.15	0.08
SPA 12-2.3	4.42	3.38	2.09	1.56	1.27	0.75	0.54	0.36	0.20	0.11
SPA 12-2.3C	3.68	2.85	1.80	1.36	1.11	0.67	0.49	0.33	0.18	0.10
SPA 12-3.3	6.34	4.85	3.00	2.24	1.82	1.07	0.78	0.52	0.29	0.16
SPA 12-5	9.93	7.58	4.66	3.47	2.80	1.64	1.19	0.78	0.44	0.24
SPA 12-6	12.96	9.88	6.02	4.44	3.56	2.06	1.48	0.98	0.55	0.28
SPA 12-7	13.64	10.48	6.48	4.83	3.91	2.30	1.66	1.10	0.61	0.33
SPA 12-7.2	13.90	10.68	6.60	4.92	3.98	2.34	1.69	1.12	0.62	0.34
SPA 12-9	17.68	13.52	8.32	6.19	5.01	2.95	2.13	1.41	0.79	0.42
SPA 12-10	19.29	14.82	9.18	6.85	5.55	3.27	2.37	1.57	0.87	0.47
SPA 12-10S	19.29	14.82	9.18	6.85	5.55	3.27	2.37	1.57	0.87	0.47
SPA 12-12	23.97	18.41	11.38	8.48	6.85	4.02	2.90	1.93	1.09	0.56
SPA 12-18	33.60	26.26	16.55	12.39	10.05	5.92	4.28	2.83	1.57	0.85
SPA 12-26	46.35	36.24	22.87	17.21	13.95	8.26	6.01	3.98	2.22	1.23
SPA 12-28	52.73	41.22	25.94	19.41	15.73	9.24	6.68	4.40	2.45	1.32

End Voltage 1.80 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPA 4-9.5	21.11	16.09	9.77	7.20	5.76	3.33	2.40	1.57	0.87	0.46
SPA 6-1.3	2.73	2.06	1.25	0.93	0.75	0.44	0.31	0.21	0.12	0.06
SPA 6-2.5	5.70	4.35	2.67	1.97	1.59	0.93	0.67	0.45	0.25	0.13
SPA 6-2.8	6.03	4.59	2.79	2.07	1.66	0.97	0.70	0.46	0.26	0.14
SPA 6-3.2	6.99	5.32	3.24	2.40	1.92	1.12	0.81	0.54	0.30	0.16
SPA 6-4.5	10.14	7.73	4.74	3.51	2.84	1.67	1.21	0.80	0.45	0.24
SPA 6-7	15.26	11.59	7.03	5.19	4.16	2.41	1.74	1.14	0.63	0.34
SPA 6-8	16.85	12.90	7.93	5.89	4.74	2.78	2.01	1.34	0.75	0.39
SPA 6-10	21.19	16.11	9.82	7.28	5.86	3.42	2.48	1.63	0.91	0.49
SPA 6-12	25.43	19.45	11.90	8.83	7.09	4.14	2.99	1.96	1.10	0.59
SPA 8-3.2	6.85	5.22	3.19	2.37	1.9	1.11	0.81	0.53	0.30	0.16
SPA 12-0.7	1.47	1.12	0.69	0.52	0.42	0.25	0.18	0.12	0.07	0.04
SPA 12-1.3	2.72	2.06	1.26	0.93	0.75	0.44	0.32	0.21	0.12	0.06
SPA 12-1.9	4.19	3.19	1.96	1.46	1.18	0.70	0.51	0.34	0.19	0.10
SPA 12-2C	3.36	2.58	1.60	1.19	0.97	0.57	0.42	0.28	0.16	0.08
SPA 12-2.3	4.81	3.65	2.22	1.65	1.33	0.78	0.57	0.37	0.21	0.11
SPA 12-2.3C	4.00	3.07	1.92	1.44	1.17	0.70	0.51	0.34	0.19	0.10
SPA 12-3.3	6.90	5.23	3.19	2.37	1.91	1.12	0.81	0.54	0.30	0.16
SPA 12-5	10.81	8.19	4.97	3.67	2.95	1.72	1.24	0.82	0.46	0.24
SPA 12-6	14.18	10.71	6.43	4.70	3.76	2.16	1.55	1.02	0.57	0.29
SPA 12-7	14.92	11.35	6.92	5.13	4.12	2.41	1.74	1.14	0.64	0.34
SPA 12-7.2	15.20	11.56	7.05	5.22	4.20	2.45	1.77	1.16	0.65	0.35
SPA 12-9	19.25	14.59	8.86	6.56	5.28	3.08	2.23	1.47	0.82	0.44
SPA 12-10	21.08	16.05	9.80	7.27	5.85	3.42	2.48	1.63	0.91	0.49
SPA 12-10S	21.08	16.05	9.80	7.27	5.85	3.42	2.48	1.63	0.91	0.49
SPA 12-12	26.23	19.96	12.16	9.00	7.22	4.21	3.04	2.01	1.13	0.59
SPA 12-18	37.18	28.77	17.81	13.24	10.65	6.22	4.49	2.95	1.65	0.88
SPA 12-26	51.18	39.56	24.56	18.31	14.80	8.68	6.27	4.14	2.32	1.27
SPA 12-28	58.41	45.19	27.94	20.75	16.67	9.71	7.00	4.60	2.56	1.37

Design and/or specifications are subject to change without prior notice. For clarifications and updated information, please contact your local SUNLIGHT sales representative.

### Performance Data

Discharge Constant Current at 25°C (Amperes)

End Voltage 1.75 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPA 4-9.5	22.65	17.08	10.22	7.46	5.97	3.43	2.46	1.61	0.89	0.47
SPA 6-1.3	2.90	2.17	1.30	0.96	0.77	0.45	0.32	0.21	0.12	0.06
SPA 6-2.5	6.10	4.61	2.78	2.05	1.65	0.96	0.69	0.46	0.26	0.14
SPA 6-2.8	6.44	4.85	2.91	2.14	1.71	0.99	0.72	0.47	0.26	0.14
SPA 6-3.2	7.47	5.63	3.38	2.48	1.99	1.15	0.83	0.55	0.31	0.16
SPA 6-4.5	10.82	8.17	4.94	3.64	2.93	1.71	1.24	0.82	0.46	0.25
SPA 6-7	16.31	12.27	7.34	5.37	4.30	2.48	1.78	1.17	0.65	0.35
SPA 6-8	18.05	13.68	8.28	6.11	4.90	2.85	2.07	1.37	0.77	0.40
SPA 6-10	22.58	17.00	10.22	7.54	6.04	3.52	2.54	1.67	0.94	0.50
SPA 6-12	27.26	20.63	12.43	9.15	7.33	4.25	3.07	2.02	1.12	0.60
SPA 8-3.2	7.31	5.52	3.32	2.45	1.97	1.14	0.83	0.55	0.31	0.16
SPA 12-0.7	1.56	1.18	0.72	0.53	0.43	0.25	0.18	0.12	0.07	0.04
SPA 12-1.3	2.89	2.17	1.31	0.97	0.78	0.45	0.33	0.22	0.12	0.06
SPA 12-1.9	4.46	3.36	2.04	1.51	1.22	0.72	0.52	0.34	0.19	0.11
SPA 12-2C	3.57	2.71	1.66	1.24	1.00	0.59	0.43	0.28	0.16	0.09
SPA 12-2.3	5.11	3.84	2.31	1.71	1.37	0.80	0.58	0.38	0.21	0.11
SPA 12-2.3C	4.25	3.23	1.99	1.49	1.21	0.72	0.52	0.35	0.19	0.11
SPA 12-3.3	7.33	5.51	3.32	2.45	1.97	1.15	0.83	0.55	0.31	0.16
SPA 12-5	11.50	8.63	5.17	3.80	3.04	1.77	1.28	0.84	0.47	0.25
SPA 12-6	15.14	11.33	6.71	4.88	3.89	2.22	1.59	1.04	0.58	0.30
SPA 12-7	15.93	12.00	7.21	5.31	4.25	2.47	1.79	1.17	0.66	0.35
SPA 12-7.2	16.22	12.22	7.34	5.41	4.33	2.52	1.82	1.19	0.67	0.36
SPA 12-9	20.47	15.36	9.21	6.79	5.44	3.17	2.29	1.51	0.84	0.45
SPA 12-10	22.49	16.95	10.21	7.53	6.03	3.52	2.54	1.67	0.94	0.50
SPA 12-10S	22.49	16.95	10.21	7.53	6.03	3.52	2.54	1.67	0.94	0.50
SPA 12-12	28.02	21.12	12.69	9.31	7.47	4.33	3.12	2.06	1.16	0.60
SPA 12-18	40.17	30.72	18.68	13.77	11.04	6.39	4.62	3.03	1.69	0.90
SPA 12-26	55.14	42.14	25.72	19.05	15.30	8.93	6.46	4.25	2.39	1.30
SPA 12-28	63.14	48.28	29.32	21.57	17.29	9.98	7.20	4.72	2.63	1.40

End Voltage 1.70 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPA 4-9.5	23.81	17.79	10.51	7.65	6.11	3.49	2.51	1.64	0.91	0.48
SPA 6-1.3	3.02	2.25	1.34	0.98	0.78	0.46	0.33	0.22	0.12	0.07
SPA 6-2.5	6.39	4.79	2.86	2.09	1.68	0.98	0.70	0.46	0.26	0.14
SPA 6-2.8	6.75	5.04	2.99	2.19	1.75	1.01	0.73	0.48	0.27	0.14
SPA 6-3.2	7.84	5.85	3.48	2.54	2.04	1.18	0.85	0.56	0.32	0.16
SPA 6-4.5	11.31	8.47	5.07	3.72	2.99	1.75	1.26	0.83	0.47	0.25
SPA 6-7	17.11	12.75	7.54	5.50	4.40	2.52	1.82	1.19	0.66	0.36
SPA 6-8	18.96	14.22	8.52	6.25	5.02	2.91	2.10	1.39	0.79	0.41
SPA 6-10	23.60	17.62	10.50	7.70	6.17	3.58	2.59	1.70	0.95	0.51
SPA 6-12	28.65	21.46	12.79	9.36	7.50	4.33	3.12	2.05	1.14	0.61
SPA 8-3.2	7.66	5.72	3.41	2.50	2.01	1.17	0.84	0.56	0.31	0.16
SPA 12-0.7	1.63	1.22	0.74	0.54	0.44	0.26	0.19	0.12	0.07	0.04
SPA 12-1.3	3.01	2.25	1.34	0.99	0.79	0.46	0.33	0.22	0.12	0.07
SPA 12-1.9	4.65	3.48	2.09	1.54	1.24	0.73	0.53	0.35	0.20	0.11
SPA 12-2C	3.72	2.80	1.70	1.26	1.02	0.60	0.44	0.29	0.16	0.09
SPA 12-2.3	5.32	3.97	2.37	1.75	1.40	0.82	0.59	0.39	0.22	0.12
SPA 12-2.3C	4.43	3.34	2.04	1.52	1.23	0.73	0.53	0.35	0.20	0.11
SPA 12										

### Performance Data

Discharge Constant Current at 25°C (Amperes)

	End Voltage 1.65 V/cell									
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPA 4-9.5	24.68	18.28	10.72	7.78	6.20	3.54	2.54	1.66	0.92	0.49
SPA 6-1.3	3.11	2.30	1.36	1.00	0.80	0.46	0.33	0.22	0.12	0.07
SPA 6-2.5	6.61	4.92	2.91	2.13	1.70	0.99	0.71	0.47	0.26	0.14
SPA 6-2.8	6.97	5.17	3.05	2.22	1.78	1.03	0.74	0.48	0.27	0.14
SPA 6-3.2	8.09	6.00	3.54	2.58	2.07	1.19	0.86	0.57	0.32	0.17
SPA 6-4.5	11.68	8.69	5.16	3.78	3.04	1.77	1.28	0.84	0.47	0.26
SPA 6-7	17.67	13.08	7.68	5.59	4.46	2.56	1.84	1.20	0.67	0.36
SPA 6-8	19.63	14.62	8.68	6.35	5.10	2.95	2.13	1.41	0.80	0.41
SPA 6-10	24.35	18.06	10.70	7.82	6.27	3.63	2.62	1.72	0.96	0.52
SPA 6-12	29.66	22.06	13.04	9.52	7.62	4.39	3.16	2.08	1.16	0.62
SPA 8-3.2	7.90	5.87	3.48	2.54	2.04	1.18	0.85	0.56	0.32	0.17
SPA 12-0.7	1.68	1.25	0.75	0.55	0.45	0.26	0.19	0.13	0.07	0.04
SPA 12-1.3	3.10	2.30	1.37	1.00	0.80	0.47	0.34	0.22	0.13	0.07
SPA 12-1.9	4.79	3.57	2.13	1.57	1.26	0.74	0.54	0.35	0.20	0.11
SPA 12-2C	3.83	2.87	1.73	1.28	1.03	0.61	0.44	0.29	0.16	0.09
SPA 12-2.3	5.48	4.07	2.42	1.77	1.42	0.83	0.60	0.39	0.22	0.12
SPA 12-2.3C	4.56	3.43	2.08	1.54	1.25	0.74	0.54	0.36	0.20	0.11
SPA 12-3.3	7.86	5.83	3.47	2.54	2.04	1.19	0.86	0.57	0.32	0.17
SPA 12-5	12.37	9.16	5.40	3.94	3.16	1.82	1.31	0.86	0.48	0.26
SPA 12-6	16.37	12.07	7.02	5.08	4.04	2.30	1.64	1.07	0.60	0.31
SPA 12-7	17.21	12.77	7.55	5.51	4.42	2.55	1.84	1.21	0.68	0.36
SPA 12-7.2	17.53	13.00	7.69	5.61	4.50	2.60	1.87	1.23	0.69	0.37
SPA 12-9	21.99	16.29	9.63	7.04	5.65	3.27	2.36	1.55	0.87	0.46
SPA 12-10	24.30	18.04	10.69	7.81	6.27	3.63	2.62	1.72	0.96	0.52
SPA 12-10S	24.30	18.04	10.69	7.81	6.27	3.63	2.62	1.72	0.96	0.52
SPA 12-12	30.35	22.52	13.28	9.69	7.76	4.47	3.22	2.12	1.20	0.62
SPA 12-18	44.33	33.17	19.67	14.36	11.49	6.62	4.76	3.12	1.74	0.93
SPA 12-26	60.53	45.34	27.04	19.85	15.89	9.21	6.66	4.38	2.46	1.34
SPA 12-28	69.73	52.17	30.88	22.52	18.00	10.34	7.43	4.86	2.71	1.44

	End Voltage 1.60 V/cell									
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPA 4-9.5	25.30	18.66	10.88	7.88	6.27	3.58	2.56	1.67	0.93	0.50
SPA 6-1.3	3.17	2.34	1.38	1.01	0.81	0.47	0.34	0.22	0.12	0.07
SPA 6-2.5	6.77	5.01	2.95	2.16	1.72	1.00	0.72	0.47	0.26	0.14
SPA 6-2.8	7.13	5.26	3.09	2.25	1.80	1.04	0.75	0.49	0.27	0.15
SPA 6-3.2	8.29	6.11	3.59	2.62	2.09	1.21	0.87	0.57	0.32	0.17
SPA 6-4.5	11.95	8.85	5.23	3.83	3.07	1.79	1.29	0.85	0.48	0.26
SPA 6-7	18.09	13.32	7.80	5.66	4.52	2.59	1.86	1.22	0.68	0.36
SPA 6-8	20.10	14.91	8.80	6.44	5.16	2.99	2.15	1.42	0.80	0.42
SPA 6-10	24.88	18.39	10.84	7.92	6.34	3.67	2.65	1.74	0.97	0.52
SPA 6-12	30.40	22.49	13.23	9.64	7.71	4.44	3.19	2.10	1.17	0.63
SPA 8-3.2	8.08	5.98	3.53	2.58	2.06	1.19	0.86	0.57	0.32	0.17
SPA 12-0.7	1.71	1.27	0.76	0.56	0.45	0.26	0.19	0.13	0.07	0.04
SPA 12-1.3	3.16	2.34	1.38	1.01	0.81	0.47	0.34	0.23	0.13	0.07
SPA 12-1.9	4.89	3.63	2.16	1.59	1.28	0.75	0.54	0.36	0.20	0.11
SPA 12-2C	3.91	2.92	1.75	1.30	1.04	0.61	0.45	0.30	0.16	0.09
SPA 12-2.3	5.59	4.14	2.45	1.79	1.44	0.84	0.60	0.40	0.22	0.12
SPA 12-2.3C	4.65	3.48	2.11	1.56	1.27	0.75	0.54	0.36	0.20	0.11
SPA 12-3.3	8.03	5.93	3.51	2.57	2.07	1.20	0.87	0.57	0.32	0.17
SPA 12-5	12.63	9.32	5.47	3.99	3.20	1.84	1.33	0.87	0.49	0.26
SPA 12-6	16.75	12.29	7.12	5.15	4.08	2.32	1.66	1.08	0.61	0.31
SPA 12-7	17.60	13.01	7.66	5.59	4.47	2.58	1.86	1.22	0.68	0.36
SPA 12-7.2	17.92	13.25	7.80	5.68	4.55	2.63	1.89	1.24	0.69	0.37
SPA 12-9	22.45	16.58	9.76	7.13	5.71	3.30	2.38	1.57	0.88	0.47
SPA 12-10	24.84	18.37	10.84	7.91	6.34	3.67	2.65	1.74	0.97	0.52
SPA 12-10S	24.84	18.37	10.84	7.91	6.34	3.67	2.65	1.74	0.97	0.52
SPA 12-12	31.07	22.93	13.47	9.81	7.84	4.52	3.25	2.14	1.21	0.63
SPA 12-18	45.63	33.90	19.98	14.56	11.64	6.69	4.81	3.15	1.76	0.94
SPA 12-26	62.25	46.28	27.46	20.09	16.10	9.31	6.73	4.43	2.48	1.35
SPA 12-28	71.84	53.31	31.37	22.82	18.22	10.46	7.50	4.91	2.73	1.46

Design and/or specifications are subject to change without prior notice. For clarifications and updated information, please contact your local SUNLIGHT sales representative.

### Performance Data

Discharge Constant Power at 25°C (Watts/cell)

	End Voltage 1.85 V/cell									
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPA 4-9.5	50.8	34.9	27.2	17.1	12.9	10.4	6.1	4.5	2.95	1.65
SPA 6-1.3	6.9	4.6	3.6	2.2	1.7	1.4	0.8	0.6	0.39	0.22
SPA 6-2.5	13.8	9.5	7.4	4.7	3.5	2.9	1.7	1.3	0.84	0.48
SPA 6-2.8	14.8	10.1	7.8	4.9	3.7	3.0	1.8	1.3	0.86	0.49
SPA 6-3.2	17.1	11.7	9.1	5.7	4.3	3.5	2.1	1.5	1.01	0.57
SPA 6-4.5	24.9	16.9	13.2	8.4	6.3	5.1	3.1	2.3	1.51	0.86
SPA 6-7	37.4	25.5	19.8	12.4	9.3	7.5	4.5	3.2	2.15	1.20
SPA 6-8	40.4	27.9	21.9	13.9	10.5	8.6	5.1	3.7	2.51	1.43
SPA 6-10	52.5	35.5	27.6	17.4	13.1	10.6	6.3	4.6	3.07	1.73
SPA 6-12	61.0	42.1	33.0	20.9	15.7	12.8	7.6	5.6	3.70	2.08
SPA 8-3.2	16.8	11.4	8.9	5.6	4.2	3.5	2.1	1.5	1.01	0.57
SPA 12-0.7	3.7	2.5	1.9	1.2	0.9	0.8	0.5	0.3	0.23	0.13
SPA 12-1.3	6.8	4.6	3.6	2.2	1.7	1.4	0.8	0.6	0.40	0.22
SPA 12-1.9	10.4	7.1	5.5	3.5	2.6	2.1	1.3	0.9	0.63	0.36
SPA 12-2C	8.4	5.7	4.4	2.8	2.2	1.8	1.1	0.8	0.53	0.30
SPA 12-2.3	12.1	8.1	6.3	4.0	3.0	2.4	1.4	1.1	0.71	0.40
SPA 12-2.3C	9.8	6.7	5.3	3.4	2.6	2.1	1.3	0.9	0.65	0.37
SPA 12-3.3	17.4	11.6	9.0	5.7	4.3	3.5	2.1	1.5	1.01	0.57
SPA 12-5	27.2	18.2	14.1	8.8	6.6	5.4	3.2	2.3	1.54	0.87
SPA 12-6	35.2	23.7	18.3	11.4	8.5	6.8	4.0	2.9	1.92	1.08
SPA 12-7	36.6	24.9	19.4	12.2	9.2	7.5	4.4	3.2	2.16	1.21
SPA 12-7.2	37.4	25.4	19.8	12.4	9.4	7.6	4.5	3.3	2.20	1.23
SPA 12-9	48.4	32.4	25.1	15.7	11.8	9.6	5.7	4.2	2.77	1.56
SPA 12-10	51.8	35.2	27.4	17.3	13.0	10.6	6.3	4.6	3.07	1.73
SPA 12-10S	51.8	35.2	27.4	17.3	13.0	10.6	6.3	4.6	3.07	1.73
SPA 12-12	64.2	43.8	34.0	21.4	16.1	13.1	7.8	5.7	3.79	2.15
SPA 12-18	85.4	60.7	48.1	31.0	23.4	19.1	11.4	8.3	5.54	3.11
SPA 12-26	118.8	83.9	66.5	42.9	32.6	26.6	16.0	11.7	7.80	4.40
SPA 12-28	133.9	95.2	75.5	48.5	36.7	30.0	17.9	13.0	8.63	4.85

	End Voltage 1.80 V/cell									
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPA 4-9.5	56.0	38.1	29.5	18.3	13.7	11.0	6.4	4.7	3.07	1.72
SPA 6-1.3	7.5	5.0	3.8	2.4	1.8	1.4	0.8	0.6	0.41	0.23
SPA 6-2.5	15.2	10.3	8.0	5.0	3.7	3.0	1.8	1.3	0.87	0.49
SPA 6-2.8	16.3	10.9	8.4	5.3	3.9	3.2	1.9	1.4	0.90	0.51
SPA 6-3.2	18.8	12.7	9.8	6.1	4.6	3.7	2.2	1.6	1.05	0.60
SPA 6-4.5	27.3	18.4	14.2	8.9	6.7	5.4	3.2	2.4	1.57	0.89
SPA 6-7	41.2	27.7	21.3	13.2	9.9	7.9	4.7	3.4	2.23	1.26
SPA 6-8	44.5	30.4	23.7	14.9	11.2	9.1	5.4	3.9	2.62	1.49
SPA 6-10	57.6	38.6	29.7	18.5	13.8	11.2	6.6	4.8	3.20	1.81
SPA 6-12	67.2	45.9	35.7	22.3	16.7	13.5	8.0	5.8	3.85	2.17
SPA 8-3.2	18.5	12.4	9.6	6.0	4.5	3.6	2.2	1.6	1.05	0.60
SPA 12-0.7	4.0	2.7	2.1	1.3	1.0	0.8	0.5	0.4	0.24	0.14
SPA 12-1.3	7.5	5.0	3.8	2.4	1.8	1.4	0.9	0.6	0.41	0.23
SPA 12-1.9	11.4	7.6	5.9	3.7	2.8	2.3	1.3	1.0	0.66	0.38
SPA 12-2C	9.1	6.1	4.8	3.0	2.3	1.9	1.1	0.8	0.55	0.31
SPA 12-2.3	13.2	8.8	6.8	4.2	3.1	2.6	1.5	1.1	0.73	0.41
SPA 12-2.3C	10.7	7.3	5.7	3.6	2.7	2.2	1.3	1.0	0.67	0.38
SPA 12-3.3	19.0	12.6	9.7	6.0	4.5	3.7	2.2	1.6	1.05	0.60
SPA 12-5	29.8	19.7	15.1	9.4	7.0	5.6	3.3	2.4	1.60	0.90
SPA 12-6	38.7	25.8	19.8	12.1	8.9	7.2				

### Performance Data

Discharge Constant Power at 25°C (Watts/cell)

End Voltage 1.75 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPA 4-9.5	60.6	40.7	31.2	19.1	14.1	11.4	6.6	4.8	3.15	1.77
SPA 6-1.3	8.1	5.3	4.0	2.5	1.8	1.5	0.9	0.6	0.42	0.24
SPA 6-2.5	16.4	11.0	8.4	5.2	3.9	3.1	1.9	1.3	0.89	0.51
SPA 6-2.8	17.5	11.6	8.9	5.5	4.1	3.3	1.9	1.4	0.92	0.52
SPA 6-3.2	20.3	13.5	10.3	6.4	4.7	3.8	2.2	1.6	1.08	0.61
SPA 6-4.5	29.4	19.5	15.0	9.3	6.9	5.6	3.3	2.4	1.60	0.91
SPA 6-7	44.4	29.5	22.5	13.8	10.2	8.2	4.8	3.5	2.29	1.29
SPA 6-8	48.0	32.4	25.0	15.5	11.6	9.4	5.5	4.0	2.68	1.53
SPA 6-10	62.0	40.9	31.3	19.2	14.3	11.5	6.8	5.0	3.28	1.85
SPA 6-12	72.6	49.0	37.7	23.3	17.3	14.0	8.2	6.0	3.95	2.22
SPA 8-3.2	19.9	13.2	10.1	6.2	4.6	3.8	2.2	1.6	1.07	0.61
SPA 12-0.7	4.3	2.8	2.2	1.4	1.0	0.8	0.5	0.4	0.24	0.14
SPA 12-1.3	8.0	5.3	4.0	2.5	1.8	1.5	0.9	0.6	0.43	0.24
SPA 12-1.9	12.3	8.1	6.2	3.8	2.9	2.3	1.4	1.0	0.68	0.38
SPA 12-2C	9.8	6.5	5.0	3.1	2.3	1.9	1.1	0.8	0.56	0.32
SPA 12-2.3	14.2	9.3	7.1	4.4	3.3	2.6	1.6	1.1	0.75	0.43
SPA 12-2.3C	11.5	7.7	5.9	3.7	2.8	2.3	1.4	1.0	0.69	0.39
SPA 12-3.3	20.4	13.3	10.2	6.3	4.7	3.8	2.2	1.6	1.08	0.61
SPA 12-5	32.0	20.9	15.9	9.7	7.2	5.8	3.4	2.5	1.65	0.93
SPA 12-6	41.7	27.4	20.8	12.6	9.3	7.4	4.3	3.1	2.05	1.16
SPA 12-7	43.4	28.8	22.0	13.5	10.1	8.1	4.8	3.5	2.30	1.30
SPA 12-7.2	44.2	29.3	22.5	13.8	10.3	8.3	4.9	3.5	2.34	1.32
SPA 12-9	56.9	37.2	28.4	17.4	12.9	10.4	6.1	4.5	2.96	1.67
SPA 12-10	61.3	40.7	31.2	19.2	14.3	11.5	6.8	5.0	3.28	1.85
SPA 12-10S	61.3	40.7	31.2	19.2	14.3	11.5	6.8	5.0	3.28	1.85
SPA 12-12	76.1	50.6	38.8	23.8	17.7	14.3	8.4	6.1	4.04	2.30
SPA 12-18	102.7	71.3	55.6	34.8	26.0	21.0	12.3	9.0	5.93	3.34
SPA 12-26	142.2	98.2	76.5	48.0	36.0	29.1	17.2	12.5	8.33	4.72
SPA 12-28	161.1	112.0	87.4	54.6	40.7	32.8	19.3	14.0	9.25	5.20

End Voltage 1.70 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPA 4-9.5	64.4	42.6	32.5	19.7	14.5	11.6	6.8	4.9	3.21	1.80
SPA 6-1.3	8.5	5.5	4.2	2.5	1.9	1.5	0.9	0.6	0.42	0.24
SPA 6-2.5	17.4	11.5	8.8	5.4	4.0	3.2	1.9	1.4	0.91	0.51
SPA 6-2.8	18.6	12.2	9.2	5.6	4.1	3.3	2.0	1.4	0.94	0.53
SPA 6-3.2	21.5	14.1	10.7	6.5	4.8	3.9	2.3	1.6	1.10	0.62
SPA 6-4.5	31.1	20.4	15.5	9.5	7.1	5.7	3.4	2.5	1.63	0.92
SPA 6-7	47.1	30.8	23.4	14.2	10.4	8.4	4.9	3.5	2.33	1.31
SPA 6-8	51.0	33.9	26.0	15.9	11.8	9.6	5.6	4.1	2.73	1.56
SPA 6-10	65.6	42.6	32.4	19.7	14.6	11.8	6.9	5.0	3.34	1.88
SPA 6-12	77.2	51.3	39.2	24.0	17.7	14.3	8.4	6.1	4.02	2.26
SPA 8-3.2	21.1	13.8	10.5	6.4	4.7	3.8	2.3	1.6	1.09	0.62
SPA 12-0.7	4.6	3.0	2.3	1.4	1.0	0.8	0.5	0.4	0.24	0.14
SPA 12-1.3	8.5	5.5	4.1	2.5	1.9	1.5	0.9	0.7	0.43	0.24
SPA 12-1.9	13.0	8.4	6.4	3.9	2.9	2.4	1.4	1.0	0.69	0.39
SPA 12-2C	10.3	6.8	5.2	3.2	2.4	1.9	1.2	0.8	0.57	0.32
SPA 12-2.3	15.0	9.7	7.3	4.5	3.3	2.7	1.6	1.2	0.77	0.43
SPA 12-2.3C	12.1	8.0	6.1	3.8	2.9	2.3	1.4	1.0	0.70	0.40
SPA 12-3.3	21.5	13.9	10.5	6.4	4.8	3.8	2.3	1.7	1.10	0.62
SPA 12-5	33.8	21.8	16.5	10.0	7.4	5.9	3.5	2.5	1.67	0.94
SPA 12-6	44.3	28.6	21.6	13.0	9.5	7.6	4.4	3.2	2.08	1.17
SPA 12-7	46.0	30.0	22.8	13.9	10.3	8.3	4.9	3.5	2.34	1.32
SPA 12-7.2	46.9	30.6	23.3	14.2	10.5	8.5	5.0	3.6	2.38	1.34
SPA 12-9	60.1	38.7	29.3	17.8	13.2	10.6	6.2	4.5	3.01	1.69
SPA 12-10	64.9	42.4	32.3	19.7	14.6	11.8	6.9	5.0	3.34	1.88
SPA 12-10S	64.9	42.4	32.3	19.7	14.6	11.8	6.9	5.0	3.34	1.88
SPA 12-12	80.7	52.9	40.2	24.5	18.1	14.6	8.5	6.2	4.11	2.34
SPA 12-18	109.7	75.1	58.0	35.9	26.6	21.5	12.6	9.1	6.03	3.39
SPA 12-26	151.6	103.2	79.7	49.4	36.8	29.7	17.6	12.8	8.47	4.80
SPA 12-28	172.2	118.0	91.2	56.3	41.7	33.6	19.7	14.2	9.40	5.28

Design and/or specifications are subject to change without prior notice. For clarifications and updated information, please contact your local SUNLIGHT sales representative.

### Performance Data

Discharge Constant Power at 25°C (Watts/cell)

End Voltage 1.65 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPA 4-9.5	67.6	44.1	33.3	20.1	14.7	11.8	6.8	4.9	3.25	1.82
SPA 6-1.3	8.9	5.6	4.2	2.6	1.9	1.5	0.9	0.6	0.43	0.24
SPA 6-2.5	18.2	11.8	9.0	5.5	4.0	3.2	1.9	1.4	0.92	0.52
SPA 6-2.8	19.4	12.5	9.5	5.7	4.2	3.4	2.0	1.4	0.95	0.53
SPA 6-3.2	22.5	14.5	11.0	6.6	4.9	3.9	2.3	1.7	1.11	0.63
SPA 6-4.5	32.5	21.0	15.9	9.7	7.2	5.8	3.4	2.5	1.65	0.93
SPA 6-7	49.3	31.7	24.0	14.4	10.6	8.5	5.0	3.6	2.36	1.33
SPA 6-8	53.5	35.1	26.7	16.2	12.0	9.7	5.7	4.1	2.76	1.57
SPA 6-10	68.4	43.9	33.2	20.1	14.8	12.0	7.0	5.1	3.38	1.91
SPA 6-12	81.0	53.0	40.2	24.4	18.0	14.5	8.5	6.2	4.07	2.29
SPA 8-3.2	22.0	14.2	10.8	6.5	4.8	3.9	2.3	1.7	1.10	0.63
SPA 12-0.7	4.7	3.0	2.3	1.4	1.0	0.9	0.5	0.4	0.25	0.14
SPA 12-1.3	8.8	5.6	4.2	2.6	1.9	1.5	0.9	0.7	0.44	0.25
SPA 12-1.9	13.5	8.7	6.6	4.0	3.0	2.4	1.4	1.0	0.69	0.39
SPA 12-2C	10.7	6.9	5.3	3.3	2.4	2.0	1.2	0.9	0.58	0.33
SPA 12-2.3	15.6	9.9	7.5	4.5	3.4	2.7	1.6	1.2	0.77	0.44
SPA 12-2.3C	12.6	8.2	6.3	3.9	2.9	2.4	1.4	1.0	0.71	0.40
SPA 12-3.3	22.4	14.3	10.8	6.5	4.8	3.9	2.3	1.7	1.11	0.63
SPA 12-5	35.2	22.4	16.9	10.2	7.5	6.0	3.5	2.6	1.69	0.95
SPA 12-6	46.2	29.5	22.1	13.2	9.6	7.7	4.4	3.2	2.10	1.19
SPA 12-7	48.0	31.0	23.4	14.2	10.5	8.4	4.9	3.6	2.37	1.33
SPA 12-7.2	49.0	31.6	23.8	14.4	10.7	8.6	5.0	3.6	2.41	1.36
SPA 12-9	62.6	39.9	30.0	18.1	13.4	10.8	6.3	4.6	3.04	1.72
SPA 12-10	67.8	43.8	33.1	20.1	14.8	12.0	7.0	5.1	3.38	1.91
SPA 12-10S	67.8	43.8	33.1	20.1	14.8	12.0	7.0	5.1	3.38	1.91
SPA 12-12	84.5	54.5	41.2	24.9	18.4	14.8	8.6	6.3	4.16	2.37
SPA 12-18	115.7	78.0	59.8	36.6	27.1	21.8	12.8	9.2	6.11	3.44
SPA 12-26	159.6	107.0	82.0	50.4	37.4	30.2	17.8	12.9	8.58	4.85
SPA 12-28	181.7	122.7	94.0	57.4	42.4	34.2	19.9	14.4	9.52	5.35

End Voltage 1.60 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPA 4-9.5	70.1	45.1	34.0	20.4	14.9	12.0	6.9	5.0	3.28	1.84
SPA 6-1.3	9.1	5.8	4.3	2.6	1.9	1.5	0.9	0.7	0.43	0.25
SPA 6-2.5	18.9	12.1	9.2	5.5	4.1	3.3	1.9	1.4	0.93	0.52
SPA 6-2.8	20.1	12.8	9.6	5.8	4.3	3.4	2.0	1.5	0.96	0.54
SPA 6-3.2	23.3	14.9	11.2	6.7	5.0	4.0	2.3	1.7	1.12	0.64
SPA 6-4.5	33.6	21.5	16.2	9.8	7.3	5.9	3.5	2.5	1.67	0.94
SPA 6-7	51.0	32.5	24.4	14.6	10.7	8.6	5.0	3.6	2.38	1.34
SPA 6-8	55.5	35.9	27.2	16.5	12.2	9.8	5.8	4.2	2.78	1.59
SPA 6-10	70.7	44.9	33.8	20.4	15.0	12.1	7.1	5.1	3.41	1.92
SPA 6-12	84.0	54.2	41.0	24.7	18.2	14.7	8.6	6.2	4.11	2.31
SPA 8-3.2	22.8	14.5	11.0	6.6	4.9	3.9	2.3	1.7	1.11	0.64
SPA 12-0.7	4.9	3.1	2.3	1.4	1.1	0.9	0.5	0.4	0.25	0.14
SPA 12-1.3	9.1	5.7	4.3	2.6	1.9	1.6	0.9	0.7	0.44	0.25
SPA 12-1.9	13.9	8.8	6.7	4.1	3.0	2.4	1.4	1.1	0.70	0.40
SPA 12-2C	11.1	7.1	5.4	3.3	2.5	2.0	1.2	0.9	0.58	0.33
SPA 12-2.3	16.1	10.1	7.6	4.6	3.4	2.8	1.6	1.2	0.78	0.44
SPA 12-2.3C	13.0	8.4	6.4	3.9	3.0	2.4	1.4	1.1	0.71	0.40
SPA 12-3.3	23.0	14.6	10.9	6.6	4.9	3.9	2.3	1.7	1.12	0.63
SPA 12-5	36.3	22.9	17.2	10.3	7.6	6.1	3.6	2.6	1.71	0.96
SPA 12-6	47.6	30.2	22.5	13.4	9.8	7.8	4.5	3.2	2.12	1.20
SPA 12-7	49.7	31.6	23.8	14.4	10.6	8.5	5.0	3.6	2.39	1.35
SPA 12-7.2	50.6	32.2	24.3	14.6	10.8	8.7	5.1	3.7	2.44	1.37
SPA 12-9	64.5	40.7	30.5	18.4	13.5	10.9	6.4</			

# SPB AGM VRLA batteries for Stationary Applications

www.norwatt.es  
norwatt@norwatt.es



 **SUNLIGHT**  
Reliable Battery Solutions

## SPB OVERVIEW

### Valve Regulated AGM batteries

The SPB range of SUNLIGHT Valve Regulated Lead Acid batteries has been developed as advanced series, to provide reliable performance in the Uninterruptible Power Supply, Telecom, Information Technology and Emergency Power Supply Systems.

The Valve Regulated Lead Acid (VRLA) battery is a rechargeable battery type with a safety valve, which allows the internal pressure to be released in case of overcharge. This battery type is maintenance free as there is no need for topping-up water or electrolyte during the entire service life.

The SUNLIGHT SPB range of VRLA batteries features models with capacity from 33 up to 200Ah. SUNLIGHT SPB batteries have been developed to offer competitive solutions to the demanding market requirements, with specifications focused on high quality and reliability.

#### APPLICATIONS

UPS systems

Emergency power supply in power generation plants and substations

Telecommunications and electrical equipment

Switchboards

Robots, control equipment and other factory automation equipment

Security and fire alarm systems

Broadcasting systems

Various telemeter equipment

Signalization



#### CERTIFIED QUALITY

- The SUNLIGHT SPB 12V batteries are recognized by UL (File No MH18852).
- The SUNLIGHT Manufacturing Plant is certified according to ISO 9001:2000 and ISO 14001:2004.
- The SUNLIGHT SPB batteries comply with IEC 60896 Part 21 & 22 and BS6290 Part 4.
- As a member of EUROBAT organization SYSTEMS SUNLIGHT S.A. closely monitors the latest developments in the battery industry.
- Products are 100% tested and checked prior to shipment.
- The SUNLIGHT SPB batteries are completely recyclable.

#### QUALITY FEATURES & PRODUCT BENEFITS

##### High Performance

With low internal resistance and efficient discharge characteristics, SUNLIGHT SPB batteries can be applied to many fields, both in cycle and stand by use.

##### Maintenance Free

During the service life, there is no need to check the level of the electrolyte or to add water. The gases produced during electrolysis are almost completely recombined to water (up to 99%) through an effective reaction between hydrogen and oxygen.

##### Safety Valve Design

Excessive gas produced by overcharge or an incorrect charging method is released through the safety valve, which detects rising internal pressure and allows gas to exit; then automatically reseals.

##### Separator Technology

The Absorbent Glass Mat (AGM) separator, used in the SUNLIGHT batteries, is a highly porous material, which achieves maximization of oxygen diffusion and facilitates the reaction of active materials in the plates. The separator also maintains a constant distance between the positive and the negative plates and immobilizes the electrolyte, so that the possibility of acid leakage is minimized.

##### Performance on Wide Temperature Range

SUNLIGHT SPB batteries operate within a wide range of temperature while the optimum temperature for the operation of the battery is 20°C - 25°C.

##### Low Self-discharge Rate

Using a lead / calcium grid alloy, the self-discharge is minimum. The battery can be stored for 9 months under normal conditions (20°C - 25°C) with no permanent effect on the capacity or the expected service life.

##### Leak and Spill Proof Container

The construction of the SUNLIGHT SPB battery guarantees that no electrolyte leakage can occur from the terminals or case. A highly resistant plastic material is used, available in either standard ABS (UL94 HB) or flame retardant type (UL94 V-0).

##### Float Service Life

The nominal service life is 12 years in float / standby applications (20°C).

##### Multi-position Usage

The sealed construction of the battery allows perfect operation in any position (vertical or horizontal but not completely inverted position).

The ideal energy solution for stationary applications

#### FEATURES OF SPB RANGE

- Capacity Range: 33Ah to 200Ah
- Design Life: 12 years at 20°C
- Classified as: Long Life, according to EUROBAT guide 1999
- Configurations: 12V blocks available



**PRODUCT RANGE**

Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah) at 1.80 Vpc (25°)		Length (mm)	Width (mm)	Height (mm)	Overall Height (mm)	Typical Weight (kg)	Terminal Position	Terminal Type	Internal Resistance (mΩ)
		20h	10h								
SPB 12 - 33	12	34	33	195	130	155	168	11.00	A	M6/Φ14	10.0
SPB 12 - 40	12	44	40	197	165	170	170	13.80	B	M6/Φ14	9.5
SPB 12 - 55	12	62	55	229	138	208	213	18.00	A	M6/Φ14	7.2
SPB 12 - 65	12	68	65	350	167	179	179	22.40	A	M6/Φ14	6.8
SPB 12 - 75	12	77	75	258	166	206	215	22.50	A	M6/Φ14	6.6
SPB 12 - 80	12	82	80	350	167	179	179	23.10	A	M6/Φ14	6.5
SPB 12 - 100	12	106	100	330	171	215	222	32.00	A	M6/Φ14	5.7
SPB 12 - 120	12	124	120	410	176	224	224	36.20	A	M8/Φ16	5.3
SPB 12 - 150	12	164	150	482	170	240	240	47.00	A	M8/Φ16	4.5
SPB 12 - 200	12	210	200	522	238	218	223	65.00	D	M8/Φ16	3.5

**DRAWINGS**

**Terminal Torque Settings**

<b>M6 Terminal</b>	6-8 Nm
<b>M8 Terminal</b>	9-12 Nm

**Case Dimensions**

**Terminals**

**Terminal Positions**

**DIAGRAMS**

**Available Capacity vs. Temperature**

**Cycle Life vs. Depth of Discharge (DoD)**

**Typical Charging Time vs. Depth of Discharge** (Initial charging current = 0.2 C<sub>10</sub>)

**Charging Voltage - Stand by Use**

**Charging Voltage - Cycle Use**

**Self-discharge Characteristics**

Temperature	Shelf Life
0 - 20°C	12 months
21 - 30°C	7 months
31 - 40°C	4 months
41 - 50°C	2,5 months

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### Performance Data

Discharge Constant Current at 25°C (Amperes)

End Voltage 1.90 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	52.6	41.7	27.5	20.9	17.3	11.5	9.0	5.9	3.2	1.7
SPB 12-40	64.9	51.4	33.4	25.3	20.8	13.3	10.2	6.9	3.9	2.1
SPB 12-55	94.1	76.5	51.0	38.3	31.3	18.9	14.1	9.3	5.3	3.0
SPB 12-65	106.8	86.7	55.9	41.7	34.1	20.3	15.0	10.3	6.3	3.3
SPB 12-75	127.0	108.0	71.8	53.7	43.5	25.6	18.8	12.9	7.3	3.8
SPB 12-80	136.3	112.6	73.8	55.5	45.1	26.7	19.7	13.2	7.8	4.0
SPB 12-100	145.9	121.5	82.7	63.0	52.2	32.1	24.2	16.4	9.7	5.1
SPB 12-120	184.2	153.4	100.9	76.3	61.0	36.3	26.8	18.7	11.6	6.1
SPB 12-150	224.2	191.3	128.4	96.9	79.0	48.5	36.5	24.6	14.5	8.0
SPB 12-200	273.0	233.0	163.7	129.1	106.2	65.4	49.2	33.4	19.3	10.2

End Voltage 1.85 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	56.2	44.1	28.8	21.7	17.9	11.8	9.2	6.1	3.2	1.7
SPB 12-40	69.3	54.5	35.0	26.3	21.5	13.7	10.5	7.1	3.9	2.1
SPB 12-55	100.5	81.1	53.4	39.8	32.4	19.4	14.4	9.5	5.4	3.0
SPB 12-65	114.0	91.9	58.5	43.4	35.4	20.9	15.3	10.5	6.4	3.4
SPB 12-75	134.0	112.0	73.9	55.3	44.4	26.1	19.1	13.1	7.4	3.8
SPB 12-80	143.5	117.4	76.0	56.9	46.1	27.2	20.0	13.4	7.9	4.1
SPB 12-100	158.8	132.5	91.8	65.5	54.0	33.0	24.7	16.7	9.8	5.2
SPB 12-120	196.5	161.9	105.0	79.0	62.9	37.2	27.4	19.1	11.8	6.1
SPB 12-150	241.7	207.1	141.9	100.8	81.6	49.9	37.4	25.1	14.7	8.1
SPB 12-200	291.0	246.0	170.4	133.8	109.6	67.1	50.3	34.1	19.7	10.4

End Voltage 1.80 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	59.8	46.6	30.0	22.5	18.5	12.1	9.4	6.2	3.3	1.7
SPB 12-40	73.7	57.5	36.5	27.3	22.3	14.0	10.7	7.2	4.0	2.2
SPB 12-55	106.9	85.6	55.8	41.4	33.6	19.9	14.7	9.7	5.5	3.1
SPB 12-65	121.3	97.0	61.1	45.1	36.6	21.5	15.7	10.7	6.5	3.4
SPB 12-75	141.0	117.0	76.1	56.4	45.4	26.6	19.4	13.3	7.5	3.8
SPB 12-80	150.7	122.2	78.2	58.2	47.0	27.7	20.3	13.6	8.0	4.1
SPB 12-100	171.0	141.1	96.1	68.0	55.8	33.9	25.3	17.1	10.0	5.3
SPB 12-120	209.0	170.4	109.2	81.8	64.9	38.3	28.1	19.5	12.0	6.2
SPB 12-150	258.3	219.2	148.0	104.0	84.1	51.2	38.3	25.7	15.0	8.2
SPB 12-200	310.0	259.0	177.2	138.1	113.0	68.8	51.5	34.8	20.0	10.5

End Voltage 1.75 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	63.4	49.1	31.3	23.4	19.1	12.4	9.6	6.3	3.4	1.7
SPB 12-40	78.1	60.5	38.0	28.3	23.0	14.4	11.0	7.3	4.1	2.2
SPB 12-55	113.3	90.1	58.1	43.0	34.7	20.5	15.1	9.9	5.6	3.1
SPB 12-65	128.6	102.1	63.7	46.7	37.8	22.1	16.1	10.9	6.6	3.5
SPB 12-75	148.0	121.0	78.2	58.0	46.4	27.0	19.7	13.5	7.6	3.9
SPB 12-80	157.9	127.0	80.5	59.7	48.0	28.1	20.6	13.8	8.1	4.2
SPB 12-100	183.2	148.5	99.1	70.4	57.6	34.8	25.9	17.4	10.2	5.3
SPB 12-120	221.0	178.9	113.4	84.3	66.9	39.2	28.7	19.9	12.2	6.3
SPB 12-150	275.0	228.8	152.2	107.3	86.6	52.4	39.1	26.2	15.3	8.3
SPB 12-200	328.0	272.0	184.0	142.8	116.4	70.6	52.7	35.5	20.3	10.6

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### Performance Data

Discharge Constant Current at 25°C (Amperes)

End Voltage 1.70 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	67.0	51.5	32.6	24.3	19.8	12.8	9.9	6.4	3.4	1.8
SPB 12-40	82.5	63.6	39.6	29.4	23.8	14.8	11.2	7.5	4.1	2.2
SPB 12-55	119.7	94.6	60.5	44.5	35.8	21.0	15.4	10.1	5.7	3.2
SPB 12-65	135.8	107.2	66.3	48.4	39.1	22.6	16.4	11.1	6.7	3.5
SPB 12-75	154.0	126.0	80.3	59.5	47.3	27.5	20.0	13.7	7.7	3.9
SPB 12-80	165.1	131.9	82.7	61.0	49.0	28.6	20.9	14.0	8.2	4.2
SPB 12-100	194.8	156.3	100.2	72.9	59.4	35.7	26.5	17.8	10.3	5.4
SPB 12-120	233.0	187.4	117.5	87.0	68.8	40.2	29.3	20.3	12.4	6.4
SPB 12-150	290.5	240.1	153.3	110.7	89.2	53.8	40.0	26.7	15.5	8.4
SPB 12-200	347.0	285.0	190.7	147.5	119.8	72.3	53.8	36.2	20.7	10.8

End Voltage 1.65 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	70.5	54.0	33.9	25.1	20.4	13.1	10.1	6.5	3.5	1.8
SPB 12-40	86.9	66.6	41.1	30.3	24.5	15.2	11.5	7.6	4.2	2.3
SPB 12-55	126.1	99.2	62.9	46.0	36.9	21.6	15.8	10.3	5.8	3.2
SPB 12-65	143.1	112.4	68.9	50.2	40.3	23.2	16.8	11.3	6.8	3.6
SPB 12-75	161.0	131.0	82.5	60.6	48.3	28.0	20.3	13.9	7.8	4.0
SPB 12-80	172.4	136.7	84.9	62.4	50.0	29.1	21.2	14.2	8.3	4.3
SPB 12-100	209.8	163.0	101.7	75.3	61.2	36.6	27.1	18.1	10.5	5.5
SPB 12-120	246.0	196.0	121.7	89.8	70.8	41.2	30.0	20.6	12.6	6.5
SPB 12-150	311.5	248.7	155.1	114.0	91.7	55.0	40.8	27.2	15.8	8.5
SPB 12-200	365.0	298.0	197.5	152.2	123.2	74.1	55.0	36.9	21.0	10.9

End Voltage 1.60 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	74.1	56.5	35.1	25.9	21.0	13.4	10.3	6.7	3.5	1.8
SPB 12-40	91.3	69.7	42.7	31.4	25.3	15.6	11.7	7.8	4.3	2.3
SPB 12-55	132.5	103.7	65.2	47.5	38.1	22.1	16.1	10.5	5.9	3.2
SPB 12-65	150.3	117.5	71.5	51.8	41.5	23.8	17.2	11.6	6.9	3.6
SPB 12-75	168.0	135.0	84.6	62.1	49.2	28.4	20.6	14	7.9	4.0
SPB 12-80	179.6	141.5	87.1	63.8	51.0	29.6	21.5	14.4	8.4	4.3
SPB 12-100	221.3	169.7	104.0	77.7	63.0	37.5	27.7	18.5	10.7	5.6
SPB 12-120	258.0	204.0	125.9	92.5	72.7	42.1	30.6	21.0	12.8	6.6
SPB 12-150	326.2	258.2	159.7	117.9	94.3	56.4	41.7	27.7	16.0	8.6
SPB 12-200	384.0	311.0	204.0	156.6	126.6	75.8	56.1	37.6	21.4	11.1

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### Performance Data

#### Discharge Constant Power at 25°C (Watts/cell)

End Voltage 1.90 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	138.6	103.8	81.4	54.7	41.7	34.6	23.1	18.2	12.3	6.7
SPB 12-40	168.1	125.8	100.0	65.9	50.7	42.2	27.6	21.1	14.4	8.1
SPB 12-55	233.0	183.7	147.2	100.2	76.5	63.3	40.8	29.9	18.6	10.6
SPB 12-65	264.0	201.0	164.6	111.0	83.4	68.5	42.6	31.1	20.9	12.8
SPB 12-75	285.0	235.0	194.0	132.0	101	83.0	50.6	36.9	24.8	14.1
SPB 12-80	322.0	267.0	222.0	151.1	115.2	94.4	57.4	41.6	27.5	16.3
SPB 12-100	352.5	283.8	235.9	166.5	129.2	108.3	68.7	50.2	33.1	19.6
SPB 12-120	407.0	351.0	297.0	210.0	161.0	129.9	77.4	57.1	39.5	24.5
SPB 12-150	488.8	436.3	375.6	271.9	210.0	174.0	108.4	78.4	51.6	30.4
SPB 12-200	591.0	530.0	453.0	346.0	274.0	226.0	139.9	102.1	69.7	40.3

End Voltage 1.85 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	148.8	109.9	85.6	56.9	43.1	35.7	23.6	18.6	12.4	6.5
SPB 12-40	180.4	133.2	105.1	68.6	52.5	43.5	28.2	21.5	14.6	8.0
SPB 12-55	250.0	194.5	154.8	104.3	79.2	65.3	41.7	30.5	18.8	10.7
SPB 12-65	284.0	213.0	173.0	115.5	86.3	70.7	43.5	31.6	21.2	12.9
SPB 12-75	305.0	247.0	202.0	136.0	104.0	84.8	51.4	37.5	25.2	14.2
SPB 12-80	341.0	277.0	229.0	154.0	116.8	95.4	57.8	41.8	27.7	16.3
SPB 12-100	389.6	305.0	254.4	182.9	133.1	111.1	70.0	50.9	33.4	19.6
SPB 12-120	442.0	370.0	309.0	216.0	165.0	132.8	78.8	57.9	39.8	24.6
SPB 12-150	535.5	464.1	400.7	296.9	216.0	177.9	110.3	79.6	52.1	30.5
SPB 12-200	641.0	559.0	472.0	356.0	281.0	231.0	142.4	103.6	70.3	40.6

End Voltage 1.80 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	159.0	116.0	89.8	59.1	44.6	36.8	24.1	18.9	12.6	6.7
SPB 12-40	192.7	140.6	110.2	71.3	54.3	44.8	28.9	21.9	14.7	8.2
SPB 12-55	267.0	205.0	162.4	108.4	81.9	67.3	42.7	31.0	19.0	10.8
SPB 12-65	303.0	225.0	181.5	120.0	89.2	72.8	44.5	32.2	21.4	13.0
SPB 12-75	326.0	259.0	210.0	140.0	106.0	86.6	52.3	38.2	25.6	14.4
SPB 12-80	360.0	288.0	236.0	156.8	118.4	96.5	58.1	42.0	27.8	16.4
SPB 12-100	425.4	324.9	268.3	190.0	137.0	114.0	71.3	51.7	33.7	19.7
SPB 12-120	476.0	389.0	322.0	222.0	169.0	135.7	80.1	58.8	40.2	24.7
SPB 12-150	580.2	490.0	419.6	306.6	221.0	181.8	112.2	80.7	52.6	30.7
SPB 12-200	691.0	587.0	491.0	366.0	287.0	236.0	144.8	105.1	71.0	40.8

End Voltage 1.75 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	169.2	122.1	93.9	61.3	46.1	37.8	24.6	19.2	12.7	6.9
SPB 12-40	205.0	148.0	115.4	74.0	56.1	46.1	29.5	22.2	14.9	8.4
SPB 12-55	284.0	216.0	169.9	112.4	84.6	69.2	43.6	31.5	19.2	10.9
SPB 12-65	322.0	237.0	189.9	124.5	92.1	74.9	45.5	32.7	21.6	13.1
SPB 12-75	346.0	272.0	218.0	144.0	109.0	88.5	53.2	38.8	25.9	14.6
SPB 12-80	379.0	299.0	243.0	159.6	120.0	97.5	58.5	42.2	27.9	16.4
SPB 12-100	461.4	345.1	279.8	194.6	140.9	116.9	72.6	52.5	34.0	19.8
SPB 12-120	510.0	408.0	334.0	229.0	172.9	138.6	81.4	59.6	40.6	24.9
SPB 12-150	625.2	516.0	434.7	312.2	226.0	185.7	114.1	81.8	53.1	31.0
SPB 12-200	741.0	615.0	510.0	376.0	294.0	241.0	147.2	106.5	71.7	41.0

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### Performance Data

#### Discharge Constant Power at 25°C (Watts/cell)

End Voltage 1.70 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	179.4	128.2	98.1	63.5	47.5	38.9	25.1	19.5	12.9	6.9
SPB 12-40	217.0	155.4	120.5	76.6	57.8	47.4	30.1	22.6	15.1	8.3
SPB 12-55	301.0	227.0	177.5	116.5	87.3	71.2	44.5	32.1	19.4	10.9
SPB 12-65	342.0	249.0	198.4	129.0	95.0	77.1	46.4	33.3	21.9	13.2
SPB 12-75	368.0	284.0	227.0	148.0	112.0	90.4	54.1	39.4	26.4	14.8
SPB 12-80	398.0	309.0	249.0	162.5	121.6	98.6	58.9	42.5	28.1	16.5
SPB 12-100	495.4	363.6	292.1	195.1	144.8	119.7	73.9	53.2	34.3	19.8
SPB 12-120	545.0	426.0	347.0	235.0	176.9	141.5	82.8	60.4	40.9	25.0
SPB 12-150	667.4	539.7	450.1	311.5	231.0	189.6	116.0	83.0	53.6	31.1
SPB 12-200	791.0	644.0	529.0	386.0	301.0	246.0	149.7	108.0	72.3	41.3

End Voltage 1.65 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	189.5	134.3	102.3	65.8	49.0	40.0	25.7	19.9	13.0	7.0
SPB 12-40	230.0	162.8	125.7	79.3	59.6	48.8	30.7	23.0	15.2	8.4
SPB 12-55	318.0	238.0	185.1	120.6	90.0	73.2	45.4	32.6	19.7	11.1
SPB 12-65	361.0	260.0	207.0	133.5	98.0	79.2	47.4	33.8	22.1	13.3
SPB 12-75	389.0	297.0	235.0	152.0	114.0	92.3	55.0	40.0	26.8	15.0
SPB 12-80	418.0	320.0	256.0	165.3	123.2	99.6	59.2	42.7	28.2	16.5
SPB 12-100	539.2	389.2	302.3	196.8	148.7	122.6	75.2	54.0	34.6	20.1
SPB 12-120	579.0	445.0	359.0	241.0	180.9	144.4	84.1	61.2	41.3	25.3
SPB 12-150	721.7	573.8	463.3	312.6	236.0	193.4	117.9	84.1	54.1	31.4
SPB 12-200	840.0	672.0	548.0	396.0	308.0	251.0	152.1	109.5	73.0	41.5

End Voltage 1.60 V/cell										
	5 min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h
SPB 12-33	199.7	140.4	106.5	68.0	50.4	41.1	26.2	20.2	13.1	6.8
SPB 12-40	242.0	170.1	130.8	82.0	61.4	50.1	31.4	23.4	15.4	8.5
SPB 12-55	335.0	248.0	192.6	124.6	92.6	75.2	46.4	33.1	19.9	11.2
SPB 12-65	381.0	272.0	215.0	138.0	100.9	81.4	48.4	34.4	22.4	13.3
SPB 12-75	412.0	310.0	245.0	156.0	117.0	94.2	55.9	40.6	27.1	15.3
SPB 12-80	437.0	330.0	263.0	168.2	124.8	100.6	59.6	42.9	28.3	16.5
SPB 12-100	573.8	408.0	312.5	199.9	152.6	125.5	76.6	54.7	35.0	20.2
SPB 12-120	613.0	464.0	371.0	247.0	184.9	147.3	85.5	62.1	41.7	25.4
SPB 12-150	764.7	597.9	475.4	317.0	242.0	197.3	119.7	85.2	54.6	31.5
SPB 12-200	890.0	701.0	567.0	407.0	315.0	256.0	154.5	111.0	73.6	41.9

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# OPzV Batteries for Stationary Applications

[norwatt@norwatt.es](mailto:norwatt@norwatt.es)

[www.norwatt.es](http://www.norwatt.es)



 **SUNLIGHT**  
Reliable Battery Solutions

## OPzV OVERVIEW

### Valve Regulated Tubular Plate GEL Batteries for Stationary Applications

SUNLIGHT's OPzV batteries are characterized by **maintenance-free, long service life, excellent reliable performance** even in harsh conditions (high operating temperature or unstable power network) and **durability under cyclic use**, thus providing a premium **efficient and cost effective energy solution**.

Optimum design, according to DIN international standards, exclusive use of high quality raw materials, robust construction and state of the art manufacturing processes make this OPzV range an **ideal solution for high demanding stationary applications**.



#### APPLICATIONS

Telecommunications

UPS systems

Utilities

Power generation & distribution

Transportation signaling

Emergency lighting

Automation and measuring systems

#### CERTIFIED QUALITY

- "Long Life" according to Eurobat classification
- Tested according to IEC 60896-21 and fully compliant to IEC 60896-22
- Optimized for deep discharge recovery according to DIN 43539T5 Part 5
- Full conformity to DIN 40742 specifications for OPzV cells and DIN 40744 for OPzV blocks
- Compliant to 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 service life

Tubular positive plates, GEL form electrolyte and a unique sliding pole design, offer a design life of up to 18 years for 2V cells or 15 years for 6V & 12V blocks as well as more than 1500 cycles at 80% Depth of Discharge.

##### Outstanding performance and reliability

Products of optimum design with use of high quality raw materials, European state-of-the-art production facilities and cumulative experience on advanced submarine battery manufacturing ensure remarkable performance, exceeding values as defined by the DIN international standards.

##### Reduced maintenance cost

Maintenance-free design without water topping-up needs.

##### Space optimization

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

##### Operational safety

Extensive compliance testing performed under European and Global norms and verified by independent 3rd party certification agency.

##### Complete battery solution

Complete and ready to install systems with all the necessary accessories. Also flame retardant containers and battery management systems are available upon request.

##### 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)

Maximum lifetime value and cost efficiency.

**The ideal energy solution for stationary 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 Pure Lead
- Dry Filling with Red Lead

- ✓ Long service life
- ✓ Excellent cycling properties
- ✓ Quality and homogeneity
- ✓ High capacity performance
- ✓ Reduced self-discharge

**2 Negative Plates**

- Pasted negative plates of grid design
- Optimized Lead Calcium Tin Alloy
- Robust construction

- ✓ Stability
- ✓ Reduced corrosion

**3 Gauntlet**

- Highly porous woven material
- Increased diameter with high Positive Active Mass (PAM)

- ✓ High capacity performance
- ✓ Better utilization of active material
- ✓ Restricts the expansion of the active material
- ✓ Eliminates active mass shedding
- ✓ Reduces corrosion of spine

**4 Bottom Bar**

- Secure fitment with gauntlet

- ✓ Growth of positive spine into bottom bar's cavity is easily accommodated

**5 Terminal Bridge**

- Manufactured with high quality, robust materials following certified processes

- ✓ Consistent and uniform pole bridge composition
- ✓ Increased robustness and durability
- ✓ Perfect connection for poles-bridge-plate block as a whole

**6 Electrolyte**

- Immobilized in GEL form
- World class equipment for GEL production and battery filling

- ✓ Durability without acid stratification or dendrite growth
- ✓ Good performance on deep discharges

**14 Pole Washers**

- Color coded pole washers

- ✓ Easy polarity recognition

**13 Internal Monoblock Intercell Connectors**

- Copper bars premium design

- ✓ High conductivity
- ✓ Safe and long operational life

**12 Terminals**

- Threaded female M10 terminal posts

- ✓ High conductivity
- ✓ Maximum torque retention
- ✓ Easy installation

**11 External Intercell Connectors**

- Flexible
- Copper
- Fully insulated
- Fixed with plasticized safety screw and probe hole on the top

- ✓ Allow voltage measurements
- ✓ High conductivity
- ✓ Safe and long operational life

**7 Separators**

- High porosity grade material

- ✓ Low internal resistance
- ✓ Good ionic circulation
- ✓ Proof against short circuits

**8 Container / Lid**

- Heavy Duty ABS Material
- Optionally flame retardant (Class V0) ABS material
- Thick wall container

- ✓ Unsurpassed mechanical strength
- ✓ Robust and durable battery construction

**9 Valve**

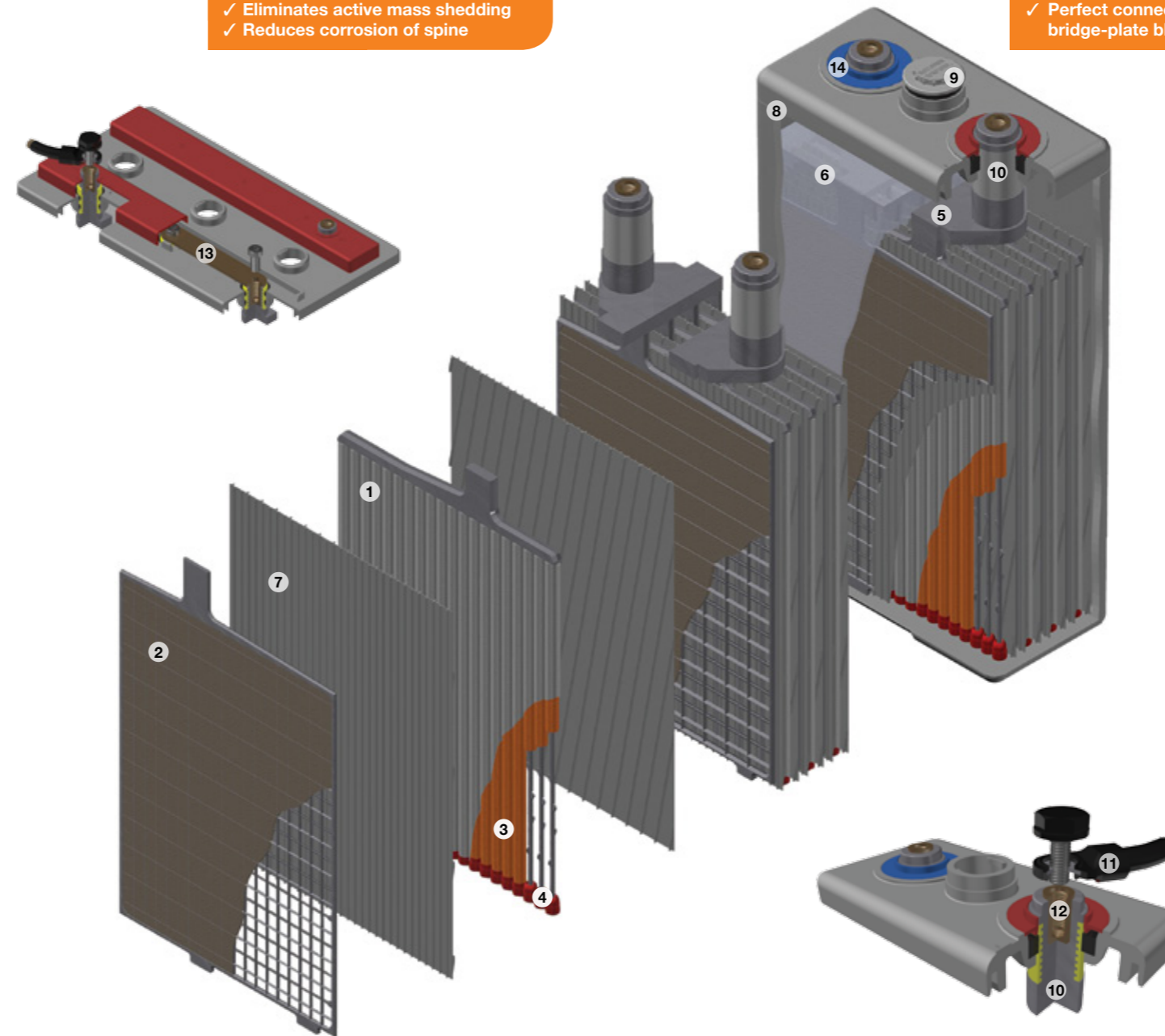
- Pressure relief
- Integral flame arrestor

- ✓ Maintenance-free design
- ✓ No water topping-up needs

**10 Sliding Poles**

- Premium sliding design with brush insert and rubber seal in the lid
- Hardness and acid 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

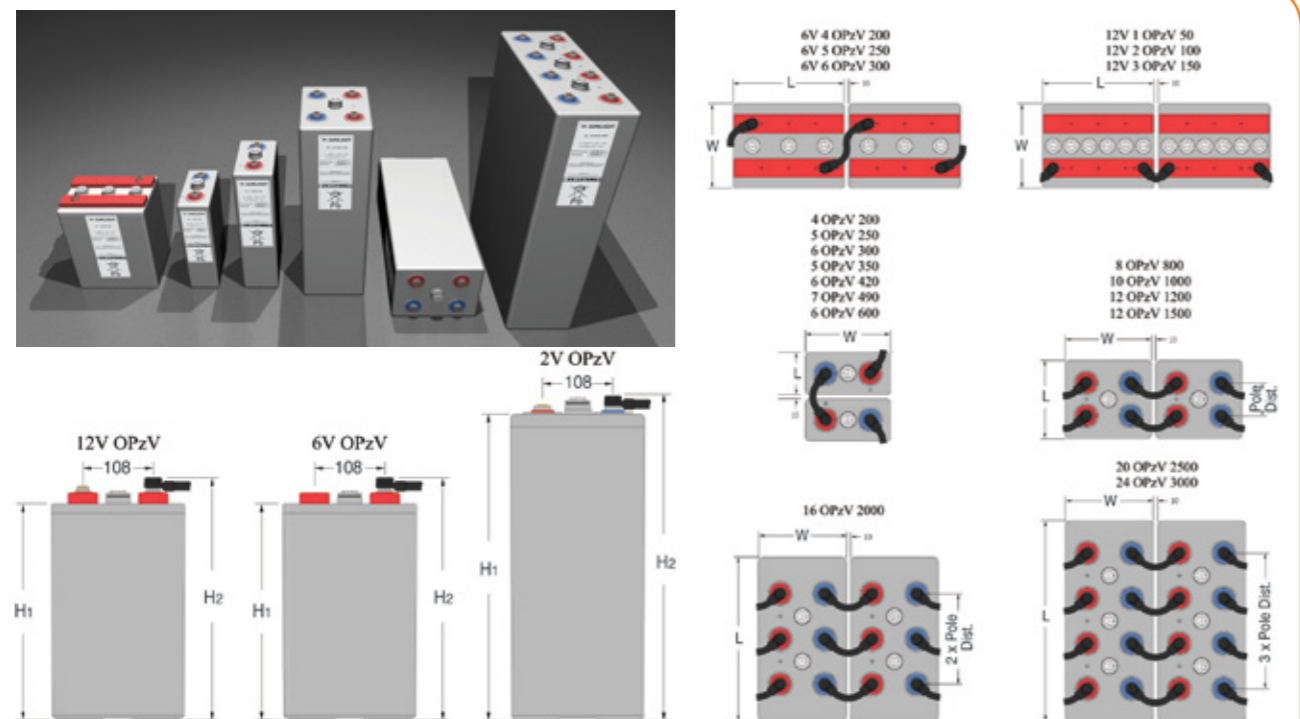


**PRODUCT RANGE**

Type	Positive Plates		Number of Poles	Nom. capacity (Ah at 20°C)				Length (mm)	Width (mm)	Height <sub>1</sub> (mm)	Height <sub>2</sub> (mm)	Pole Dist. (mm)	Weight (approx kg)	Nom. Voltage	Short Circuit Current (A)	Internal Resistance (mOhm)
	Number	Number		C10 (Ah) 1.80 Vpc	C5 (Ah) 1.75 Vpc	C3 (Ah) 1.75 Vpc	C1 (Ah) 1.75 Vpc									
2V 4 OPzV 200 <sup>1</sup>	4	50	2	224	202	179	124	103	206	355	382	-	20	2	2300	0.88
2V 5 OPzV 250 <sup>1</sup>	5	50	2	280	253	224	155	124	206	355	382	-	24	2	2860	0.71
2V 6 OPzV 300 <sup>1</sup>	6	50	2	336	303	268	185	145	206	355	382	-	28	2	3380	0.60
2V 5 OPzV 350 <sup>1</sup>	5	70	2	405	365	320	212	124	206	471	498	-	31	2	3380	0.60
2V 6 OPzV 420 <sup>1</sup>	6	70	2	486	438	384	252	145	206	471	498	-	37	2	3980	0.51
2V 7 OPzV 490 <sup>1</sup>	7	70	2	567	512	447	292	166	206	471	498	-	42	2	4520	0.45
2V 6 OPzV 600 <sup>1</sup>	6	100	2	690	623	539	330	145	206	646	673	-	50	2	4360	0.47
2V 8 OPzV 800 <sup>1</sup>	8	100	4	920	831	720	445	191	210	646	673	80	68	2	5980	0.34
2V 10 OPzV 1000 <sup>1</sup>	10	100	4	1150	1039	899	554	233	210	646	673	110	82	2	7380	0.28
2V 12 OPzV 1200 <sup>1</sup>	12	100	4	1380	1247	1076	657	275	210	646	673	140	97	2	8640	0.24
2V 12 OPzV 1500 <sup>1</sup>	12	125	4	1620	1470	1275	784	275	210	797	824	140	120	2	9440	0.22
2V 16 OPzV 2000 <sup>1</sup>	16	125	6	2160	1960	1701	1049	399	214	772	799	110	165	2	12680	0.16
2V 20 OPzV 2500 <sup>1</sup>	20	125	8	2700	2452	2130	1322	487	212	772	799	110	200	2	16240	0.13
2V 24 OPzV 3000 <sup>1</sup>	24	125	8	3240	2940	2544	1552	576	212	772	799	140	240	2	18460	0.11
6V 4 OPzV 200 <sup>2</sup>	4	50	2	206	190	169	117	272	205	332	371	-	48	6	2260	2.70
6V 5 OPzV 250 <sup>2</sup>	5	50	2	257	237	211	146	380	205	332	371	-	63	6	2740	2.22
6V 6 OPzV 300 <sup>2</sup>	6	50	2	309	285	253	173	380	205	332	371	-	70	6	3220	1.89
12V 1 OPzV 50 <sup>2</sup>	1	50	2	51	47	42	30	272	205	332	371	-	43	12	620	19.80
12V 2 OPzV 100 <sup>2</sup>	2	50	2	102	94	84	59	272	205	332	371	-	52	12	1240	9.90
12V 3 OPzV 150 <sup>2</sup>	3	50	2	153	141	126	88	380	205	332	371	-	72	12	1720	7.08

<sup>1</sup> According to DIN 40 742 <sup>2</sup> According to DIN 40 744 \*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**
  - TOP 3 in the global advanced technology
  - TOP 5 in the European industrial battery sector
  - 98% of battery production is being exported
  - Design and manufacturing thousands of 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 & Experience**
  - Co-operation with TOP telecom operators and equipment providers worldwide
  - A fast growing Global Partners Network
- Exceptional Customer Service**
  - Highly experienced engineering team for design & development
  - Pre-Sales & After-Sales Service providing global support
  - Project Management competence