



SPa AGM VRLA batteries

 **SUNLIGHT**  
creating energy



[ Energy is what we do ]

# SPA batteries introduction

## Product Information

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.

## 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

## Quality and Standards

- 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.



# SPA batteries technical features & applications

## Technical Features

### 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).

## 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



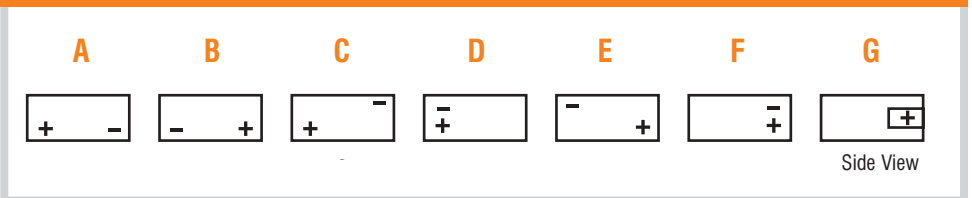
## SPA Series

Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah)		Dimensions (mm)				Typical Weight (kg)	Terminal Position	Terminal Type	Maximum Current		Internal Resistance (mΩ)
		20h	10h at 1.75 Vpc	L	W	h	Overall H				Charging (A)	Discharging (A)	
SPA 4 - 9.5	4	9.5	8.9	102	44	95	101	1.00	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	50
SPA 6 - 2.5	6	2.7	2.5	66	33	97	104	0.61	C	F1	1.12	42	25
SPA 6 - 2.8	6	2.8	2.6	66	33	97	104	0.61	C	F1	1.12	42	25
SPA 6 - 3.2	6	3.2	3.1	134	34	61	67	0.71	A	F1	1.28	48	30
SPA 6 - 4.5	6	4.5	4.2	70	47	101	107	0.92	C	F1	2.0	75	22
SPA 6 - 7	6	7	6.5	151	34	94	100	1.20	A	F1	2.8	105	14
SPA 6 - 8	6	8	7.7	98	56	117	117	1.69	E	F1	3.2	120	13
SPA 6 - 10	6	10	9.3	151	50	94	100	1.67	A	F1	4.0	150	10
SPA 6 - 12	6	12	11.2	151	50	94	100	2.00	A	F1	4.8	180	10
SPA 8 - 3.2	8	3.2	3.1	134	36	63	69	0.80	D	F1	1.3	48	33
SPA 12 - 0.7	12	0.7	0.6	96	25	62	62	0.34	-	F5	0.3	12	220
SPA 12 - 1.3	12	1.3	1.2	97	43	52	58	0.61	D	F1	0.5	18	95
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	1.6	1.4	144	24	65	65	0.60	G	F4	0.6	24	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	1.8	182	24	61	61	0.71	G	F4	0.9	35	42
SPA 12 - 3.3	12	3.3	3.0	134	67	61	67	1.40	D	F1	1.3	48	45
SPA 12 - 5	12	5	4.6	90	70	101	107	1.80	A	F1	2.0	75	34
SPA 12 - 6	12	6	5.8	151	52	94	99	2.18	F	F1	2.4	90	18
SPA 12 - 7	12	7	6.5	151	65	94	100	2.43	F	F1	2.8	105	28
SPA 12 - 7.2	12	7.2	6.6	151	65	94	100	2.43	F	F1	2.8	105	28
SPA 12 - 9	12	9	8.4	151	65	94	100	2.80	F	F1	3.6	135	18
SPA 12 - 10	12	10	9.3	151	98	95	101	3.70	F	F1	4.0	150	21
SPA 12 - 10S	12	10	9.3	151	65	111	117	3.25	F	F1	4.0	150	22
SPA 12 - 12	12	12	11.6	151	98	95	101	3.90	F	F1	4.8	180	17
SPA 12 - 18	12	18	16.8	181	77	167	167	5.70	B	F2	6.8	255	16
SPA 12 - 26	12	26	23.8	166	175	125	125	8.60	B	F2	9.6	300	12
SPA 12 - 28	12	28	26.3	165	125	175	182	9.95	B	F3	11.2	310	11

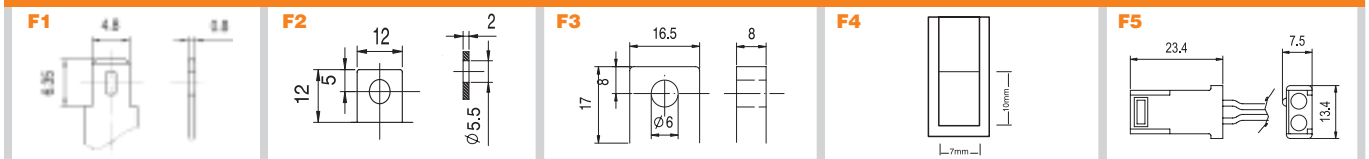
### Case Dimensions



### Terminal Positions



### Terminals



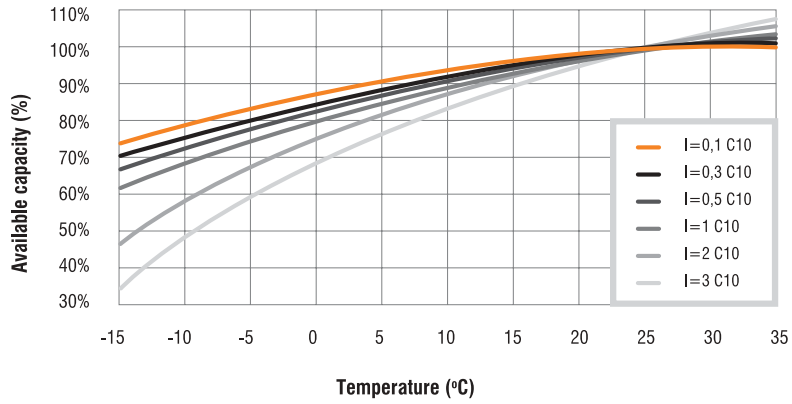
F1: Faston Tab 4,8

F2: Bold Fastened Terminal

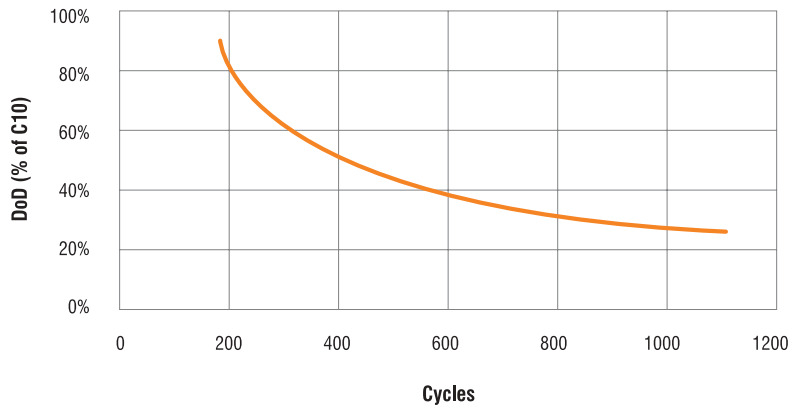
F3: Bold Fastened Terminal

F5: Wire and connector

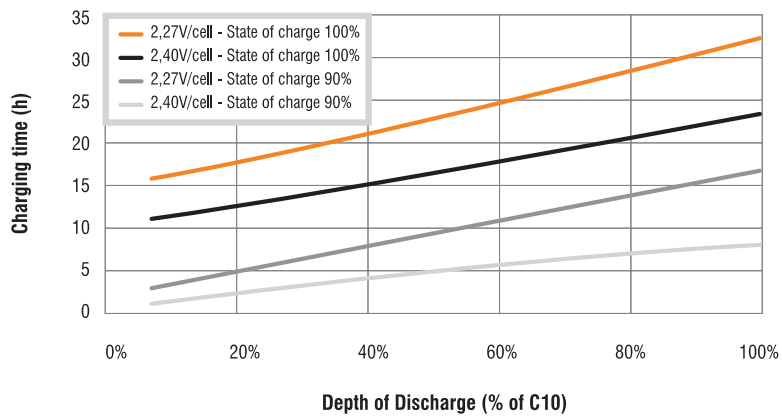
Available capacity vs. Temperature



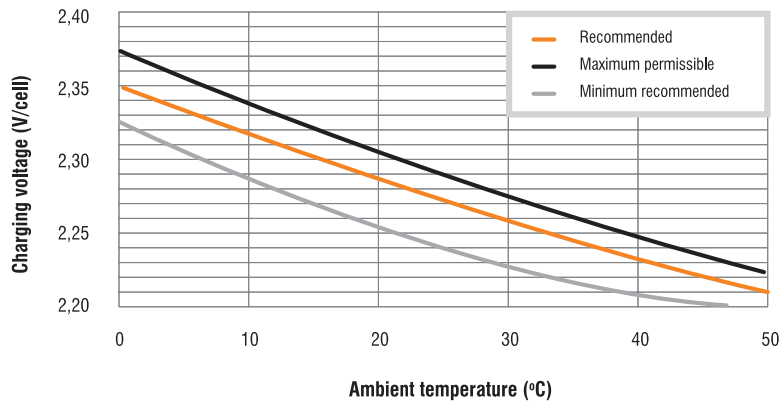
Cycle life vs. Depth of Discharge (DOD)



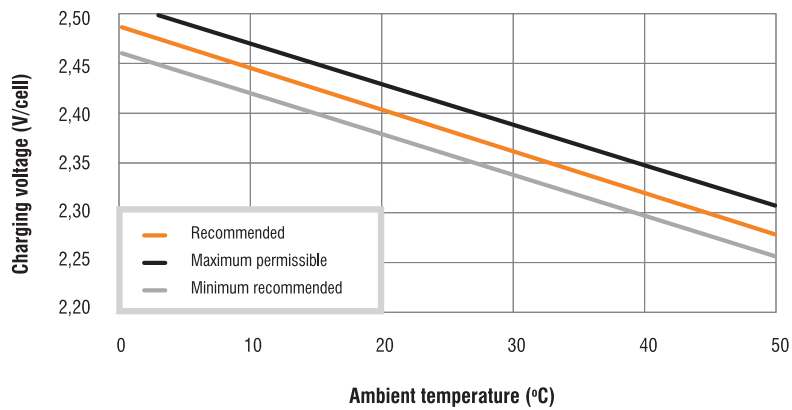
Typical charging time vs. Depth of Discharge (initial charging current=0,2C10)



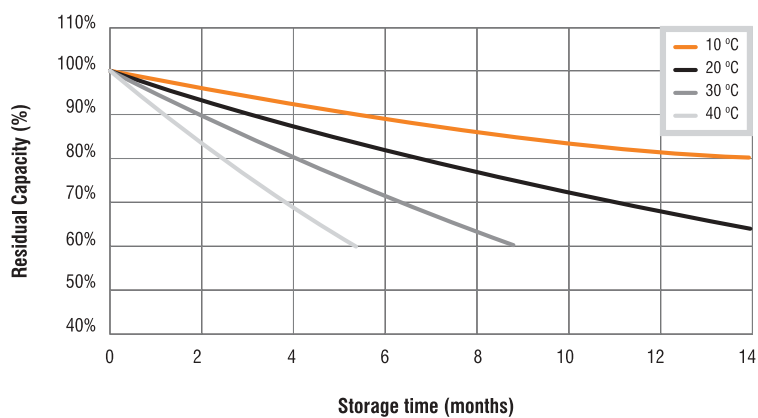
### Charging voltage - Stand by use



### 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

# Discharge Table in Amperes

End voltage 1.85 V/cell at 25° C

	Time	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
Type	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

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# Discharge Table in Amperes

End voltage 1.80 V/cell at 25°C

	Time	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
Type	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	1.90	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	

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# Discharge Table in Amperes

End voltage 1.75 V/cell at 25° C

Time	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

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# Discharge Table in Amperes

End voltage 1.70 V/cell at 25° C

	Time	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
Type	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 12-3.3	7.64	5.70	3.40	2.51	2.01	1.17	0.85	0.56	0.31	0.17
	SPA 12-5	12.01	8.93	5.31	3.88	3.11	1.80	1.30	0.85	0.48	0.25
	SPA 12-6	15.86	11.76	6.89	4.99	3.98	2.27	1.62	1.06	0.59	0.31
	SPA 12-7	16.67	12.45	7.41	5.43	4.35	2.52	1.82	1.19	0.67	0.36
	SPA 12-7.2	16.97	12.68	7.54	5.53	4.43	2.56	1.85	1.22	0.68	0.37
	SPA 12-9	21.35	15.90	9.46	6.94	5.56	3.22	2.33	1.53	0.86	0.46
	SPA 12-10	23.53	17.59	10.49	7.70	6.17	3.58	2.59	1.70	0.95	0.51
	SPA 12-10S	23.53	17.59	10.49	7.70	6.17	3.58	2.59	1.70	0.95	0.51
	SPA 12-12	29.39	21.94	13.04	9.53	7.64	4.41	3.18	2.10	1.18	0.61
	SPA 12-18	42.54	32.14	19.27	14.10	11.31	6.52	4.70	3.08	1.72	0.92
	SPA 12-26	58.24	44.01	26.49	19.52	15.63	9.10	6.58	4.33	2.43	1.32
SPA 12-28	66.91	50.54	30.25	22.11	17.71	10.19	7.33	4.80	2.67	1.43	

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# Discharge Table in Amperes

End voltage 1.65 V/cell at 25° C

	Time	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
Type	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

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# Discharge Table in Amperes

End voltage 1.60 V/cell at 25° C

	Time	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
Type	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	

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# Discharge Table in Watts/cell

End voltage 1.85 V/cell at 25° C

	Time	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
Type	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

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# Discharge Table in Watts/cell

End voltage 1.80 V/cell at 25°C

	Time	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
Type	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	4.2	3.0	2.00	1.13
	SPA 12-7	40.3	27.1	20.9	13.0	9.7	7.9	4.7	3.4	2.24	1.26
	SPA 12-7.2	41.1	27.6	21.3	13.3	9.9	8.0	4.7	3.4	2.28	1.29
	SPA 12-9	53.0	35.1	27.0	16.7	12.5	10.1	6.0	4.3	2.88	1.63
	SPA 12-10	57.0	38.3	29.6	18.4	13.8	11.2	6.6	4.8	3.20	1.81
	SPA 12-10S	57.0	38.3	29.6	18.4	13.8	11.2	6.6	4.8	3.20	1.81
	SPA 12-12	70.6	47.6	36.7	22.9	17.1	13.8	8.1	5.9	3.95	2.24
	SPA 12-18	94.6	66.5	52.3	33.2	25.0	20.3	12.0	8.7	5.78	3.25
	SPA 12-26	131.2	91.8	72.1	45.9	34.6	28.2	16.8	12.2	8.11	4.60
	SPA 12-28	148.4	104.4	82.2	52.1	39.2	31.7	18.7	13.6	9.01	5.07

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# Discharge Table in Watts/cell

End voltage 1.75 V/cell at 25° C

	Time	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
Type	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

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# Discharge Table in Watts/cell

End voltage 1.70 V/cell at 25°C

	Time	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
Type	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

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# Discharge Table in Watts/cell

End voltage 1.65 V/cell at 25° C

	Time	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
Type	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

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# Discharge Table in Watts/cell

End voltage 1.60 V/cell at 25°C

	Time	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
Type	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	4.6	3.07	1.73
	SPA 12-10	70.1	44.7	33.7	20.3	15.0	12.1	7.1	5.1	3.41	1.92
	SPA 12-10S	70.1	44.7	33.7	20.3	15.0	12.1	7.1	5.1	3.41	1.92
	SPA 12-12	87.4	55.8	42.0	25.3	18.6	15.0	8.7	6.3	4.19	2.39
	SPA 12-18	120.7	80.2	61.1	37.1	27.4	22.1	12.9	9.3	6.17	3.47
	SPA 12-26	166.2	109.8	83.6	51.1	37.9	30.6	18.0	13.1	8.66	4.90
	SPA 12-28	189.7	126.1	96.0	58.3	43.0	34.6	20.2	14.6	9.61	5.40

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## SUNLIGHT MANUFACTURING PLANT

The SUNLIGHT Manufacturing Plant is headquartered in Northern Greece. Since 1991, there has been a systematic investment in the development of one of the most modern industrial units of Europe in accordance with the strictest international standards.

In a total area of 142,000 m<sup>2</sup>, with indoor areas of more than 40,000 m<sup>2</sup>, the SUNLIGHT Manufacturing Plant has six high-end production units that are recognized for their high specialization.

Aiming at the production of high added value and quality products, the production and assembly lines of the SUNLIGHT Industrial Unit are used for:

- Cylindrical Zinc-Chloride cells such as R6HD (AA), R14HD (C) and R20HD (D) sizes.
- Advanced Lead-Acid batteries for submarine propulsion.
- Silver-Zinc batteries for combat and exercise torpedoes.
- Stationary and traction Lead-Acid batteries (vented type).
- Sealed Lead-Acid Batteries (VRLA).
- Autonomous Photovoltaic Hybrid Power Supply Systems.
- Battery packs for military and commercial applications.
- Assembly of Power Supply Systems for telecommunication applications.
- Assembly of Uninterruptible Power Systems (UPS).
- Assembly of Industrial Rectifiers.
- Assembly of Generating Sets ranging from 5 to 3,000 KVA.

## MANAGEMENT SYSTEMS for QUALITY, ENVIRONMENTAL CONTROL, OCCUPATIONAL HEALTH & SAFETY

The SUNLIGHT Manufacturing Plant has established and maintains management systems for Quality (ISO 9001), Environmental control (ISO 14001) and Occupational Health and Safety (OHSAS 18001).

comrade design



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