



OP_zS STANDBY batteries

 **SUNLIGHT**
creating energy



[Energy is what we do]

OPzS batteries introduction

OPzS batteries are robust energy storage solutions, with a proven technology that has been used for decades in applications that require a safe and reliable battery with long service life. SUNLIGHT OPzS batteries are distinguished by their high tolerance to cycling and long life in standby parallel mode. They are designed and manufactured according to DIN Standards. They cover a wide field of applications some of which are telecommunication centers, control and monitoring systems in power plants and distribution stations, railway stations, signaling, control and regulating systems, data processing systems, airports, emergency lighting, alarm systems, energy supply and several others.

Advantages

- Compliant to DIN 40736 and DIN 40737.
- The optimized plate design results in increased capacities over DIN standards.
- Minimum maintenance due to reduced antimony content and large electrolyte reserve volume.
- Ideal for cycling applications due to the tubular plate technique.
- Long service life: more than 15 years in floating applications.
- Recommended temperature range of operation (-10°C up to +50°C, preferred value 20°C).
- Available in 2V cells, 6V and 12V monoblocks.
- Delivery in dry charged or wet charged conditions.
- Long storage time for cells delivered in dry charged condition.
- Suitable for all standard types of installation.



OP_zS batteries cell construction



Positive Plates

SUNLIGHT OP_zS cells are manufactured with tubular positive plates. The tubular plate design is well proven and known for its high reliability and long service life in float charging operation. The plate composition of a special low-Antimony (<1.6% Sb) and Selenium alloy, results in a fine-grain structure and low corrosion rate, a basic property for obtaining a long service life and high reliability of the cell.

Negative Plates

SUNLIGHT negative plates are manufactured with grid design. In this case a lead alloy with a 5% antimony content is used. In order for the plates to maintain the porosity of the active mass, certain special ingredients are added to the paste, allowing the plates to retain their "spongy" consistency.

Separators

The separators are manufactured from microporous PVC, a material of high porosity, low electrical resistance and high acid resistance. The separators are permeable and allow the migration of ions during the charging and discharging process of the battery. Thus the solid particle migration between the plates is prevented and any short circuit avoided. The design of the separators also allows the presence of more acid in the surrounding area of the plates.

Connectors

Plastic coated copper cables are used for inter cell and inter-row connection of the battery cells.

Vent Plugs

The Vent Plugs are flame retardant made of ceramic material, improving the safety of the cell.

The Electrolyte

The Electrolyte Specific Gravity of a fully charged cell is 1.240 ± 0.010 kg/lit at 20°C at maximum and 1.260 at 20°C at minimum level. In different temperatures, outside the range of +10°C to +30°C the temperature compensation which should be introduced is - 0.0007 kg/lit per each °C variance.

The Electrolyte Freezing Point of:

- A fully charged cell is -45°C (reference acid specific gravity 1.240 kg/lit).
- A fully discharged cell is -5°C to -10°C (reference acid specific gravity 1.100 kg/lit).

Cell Containers and Covers

Styrene Acrylonitrile (SAN) is used on the containers of SUNLIGHT OP_zS cells. SAN is transparent allowing the user an easy reading of the electrolyte level and visual inspection of the cell. The covers of the cells are made of Acrylonitrile-butadiene-styrene copolymer (ABS).

Poles

Specially designed poles, effectively prevent acid leakage and pillar corrosion thus increasing the lifetime of the battery.

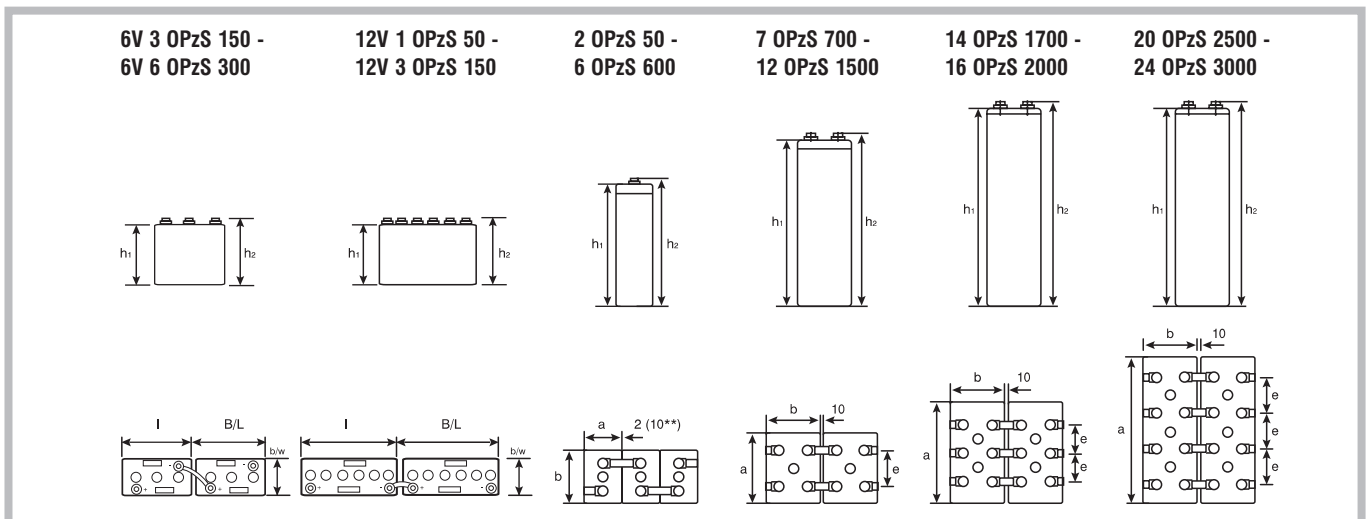
Applications

- Telecommunications.
- Control and monitoring systems in power plants and distribution stations.
- Railway stations.
- Signaling, Control and Regulating systems.
- Data processing systems.
- UPS.
- Airports.

Technical Characteristics

Type Designation	Positive plate		Capacity (Ah) C ₁₀ V/cell 1,80	Cell Dimensions (mm)					Weight (kg)		Volume of separate electrolyte (lt)
	No	Size (Ah)		a	b	h1	h2	e	with electrolyte	without electrolyte	
Monoblocks	No	Size (Ah)		a	b	h1	h2	e	with electrolyte	without electrolyte	
6V 3 OPzS 150	3 x 3	50	150	234	201	345	378	-	41.2	29.8	9.2
6V 4 OPzS 200	3 x 4	50	200	272	205	350	362.5	-	47.1	35.2	9.6
6V 5 OPzS 250	3 x 5	50	250	380	205	350	362.5	-	60.9	43.5	14.0
6V 6 OPzS 300	3 x 6	50	300	380	205	350	362.5	-	67.1	50.5	13.4
12V 1 OPzS 50	6 x 1	50	50	272	205	350	362.5	-	37.7	24.4	10.7
12V 2 OPzS 100	6 x 2	50	100	272	205	350	362.5	-	49.4	37.7	9.4
12V 3 OPzS 150	6 x 3	50	150	380	205	350	362.5	-	69.8	53.0	13.5
2V cells	No	Size (Ah)		a	b	h1	h2	e	with electrolyte	without electrolyte	
2 OPzS 100*	2	50	100	103	206	355	380	-	13.8	8.4	4.4
3 OPzS 150*	3	50	150	103	206	355	380	-	15.7	10.7	4.0
4 OPzS 200	4	50	200	103	206	355	380	-	17.5	13.0	3.6
5 OPzS 250	5	50	250	124	206	355	380	-	21.4	15.4	4.8
6 OPzS 300	6	50	300	145	206	355	380	-	25.7	18.5	5.8
5 OPzS 350	5	70	350	124	206	471	496	-	28.4	20.7	6.2
6 OPzS 420	6	70	420	145	206	471	496	-	33.5	24.3	7.4
7 OPzS 490	7	70	490	166	206	471	496	-	38.6	27.9	8.6
5 OPzS 500*	5	100	500	145	206	646	671	-	42.0	28.8	10.6
6 OPzS 600	6	100	600	145	206	646	671	-	45.8	33.0	10.3
7 OPzS 700*	7	100	700	191	210	646	671	80	60.0	42.7	14.0
8 OPzS 800	8	100	800	191	210	646	671	80	63.8	46.8	13.7
9 OPzS 900*	9	100	900	233	210	646	671	110	73.0	53.0	16.1
10 OPzS 1000	10	100	1000	233	210	646	671	110	78.2	57.3	16.9
12 OPzS 1200	12	100	1200	275	210	646	671	140	91.3	66.2	20.2
11 OPzS 1400*	11	125	1400	275	210	796	821	140	110.5	76.0	27.8
12 OPzS 1500	12	125	1500	275	210	796	821	140	115.1	81.1	27.4
14 OPzS 1700*	14	125	1700	397	212	772	797	2 x 110	143.3	96.3	37.9
15 OPzS 1875	15	125	1875	397	212	772	797	2 x 110	148.9	102.6	37.3
16 OPzS 2000	16	125	2000	397	212	772	797	2 x 110	154.5	108.8	36.9
20 OPzS 2500	20	125	2500	487	212	772	797	3 x 110	201.0	135.0	53.2
24 OPzS 3000	24	125	3000	576	212	772	797	3 x 140	230.0	158.0	58.1

* Over DIN standard product range



Discharge Table in Amperes

End voltage 1.90 V/per cell

	Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	6V 3 OPzS 150	7.5	13.3	15.8	21.9	29.9	37.1	42.9	50.8	56.5	63.8
	6V 4 OPzS 200	9.6	17.3	20.5	28.5	38.9	48.5	56.0	66.4	73.8	83.5
	6V 5 OPzS 250	12.4	21.9	25.9	35.7	48.8	60.6	69.5	82.2	91.0	102.1
	6V 6 OPzS 300	14.4	25.6	30.4	42.0	57.4	71.4	81.9	96.9	107.3	120.4
	12V 1 OPzS 50	2.6	4.6	5.5	7.5	10.4	12.9	14.8	17.5	19.4	22.0
	12V 2 OPzS 100	4.8	8.6	10.3	14.4	19.7	24.7	28.6	34.1	38.1	43.5
	12V 3 OPzS 150	7.21	12.9	15.3	21.3	29.3	36.5	42.3	50.3	56.0	63.6
	2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	2 OPzS 100	5.3	9.3	11.1	15.2	20.6	25.5	29.3	34.5	38.1	42.9
	3 OPzS 150	7.7	13.6	16.2	22.3	30.3	37.6	43.1	51.1	56.6	63.9
	4 OPzS 200	9.8	17.5	20.7	28.8	39.2	48.7	56.1	66.4	73.7	82.9
	5 OPzS 250	12.5	22.0	26.1	36.0	49.3	61.3	70.4	83.4	92.6	104.3
	6 OPzS 300	14.9	26.4	31.3	43.1	58.8	73.0	83.7	99.2	109.8	123.3
Type	5 OPzS 350	17.2	30.3	35.8	49.0	66.2	81.7	92.7	108.9	119.1	132.3
	6 OPzS 420	20.6	36.3	42.8	58.7	79.0	97.5	110.4	129.7	141.5	157.0
	7 OPzS 490	24.0	42.2	49.9	68.2	91.7	113.1	127.9	150.1	163.4	181.2
	5 OPzS 500	25.3	43.9	51.6	69.9	92.7	113.5	127.6	147.8	160.3	175.2
	6 OPzS 600	29.5	51.4	60.4	82.0	108.9	133.3	149.7	173.4	187.9	204.9
	7 OPzS 700	35.1	60.9	71.5	96.9	128.5	157.1	176.4	204.0	221.1	241.1
	8 OPzS 800	39.4	68.7	80.8	109.7	146.1	179.1	201.4	233.8	253.8	277.4
	9 OPzS 900	44.5	77.6	91.2	123.8	164.5	201.7	226.6	262.8	285.1	311.5
	10 OPzS 1000	49.1	85.7	100.8	137.1	182.5	223.8	251.7	292.1	317.0	346.9
	12 OPzS 1200	58.8	102.3	120.3	163.2	217.2	264.6	297.1	343.1	371.8	404.0
	11 OPzS 1400	69.0	118.3	138.2	184.8	242.3	291.6	325.4	368.1	396.6	427.0
	12 OPzS 1500	74.4	127.8	149.2	199.8	262.1	315.7	352.4	398.7	430.0	462.0
	14 OPzS 1700	88.5	151.6	177.0	236.4	309.9	372.8	416.0	471.0	506.0	545.0
	15 OPzS 1875	94.0	161.4	188.6	252.5	331.2	399.3	446.0	506.0	544.0	586.0
	16 OPzS 2000	99.5	171.5	200.6	269.6	354.6	429.0	480.0	547.0	590.0	636.0
	20 OPzS 2500	126.7	217.9	254.8	342.0	450.0	544.0	609.0	694.0	750.0	808.0
	24 OPzS 3000	150.1	258.2	301.9	405.0	533.0	643.0	719.0	817.0	882.0	951.0

Discharge Table in Amperes

End voltage 1.87 V/per cell

Monoblocks		20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
6V 3 OPzS 150		8.0	14.5	17.3	24.2	33.5	41.9	48.6	58.2	65.0	73.8
6V 4 OPzS 200		10.3	18.8	22.4	31.4	43.6	54.9	63.6	76.3	85.2	96.7
6V 5 OPzS 250		13.2	23.8	28.4	39.7	54.9	68.6	79.2	94.4	105.1	118.9
6V 6 OPzS 300		15.4	27.9	33.3	46.5	64.5	80.9	93.5	111.6	124.1	140.4
12V 1 OPzS 50		2.8	5.0	6.0	8.3	11.6	14.5	16.8	20.0	22.4	25.4
12V 2 OPzS 100		5.1	9.4	11.2	15.8	22.0	27.9	32.4	39.0	43.9	50.1
12V 3 OPzS 150		7.7	14.0	16.7	23.5	32.8	41.3	48.0	57.6	64.6	73.5
2V cells		20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
Type	2 OPzS 100	5.7	10.2	12.1	16.9	23.1	28.8	33.1	39.5	43.9	49.8
	3 OPzS 150	8.2	14.9	17.6	24.6	34.0	42.5	49.1	58.5	65.3	74.0
	4 OPzS 200	10.5	19.0	22.6	31.7	43.9	55.1	63.8	76.2	85.0	96.4
	5 OPzS 250	13.2	24.0	28.5	39.9	55.3	69.3	80.2	95.8	106.8	121.2
	6 OPzS 300	15.9	28.7	34.1	47.7	66.1	82.7	95.6	113.9	126.8	143.6
	5 OPzS 350	18.5	33.2	39.4	54.6	75.0	92.8	106.6	125.5	138.4	154.9
	6 OPzS 420	22.1	39.7	47.2	65.4	89.6	110.6	127.1	149.3	164.7	184.0
	7 OPzS 490	25.9	46.3	54.9	76.1	104.1	128.5	147.5	172.9	190.3	212.4
	5 OPzS 500	27.2	48.3	57.1	78.4	105.8	129.3	147.2	170.6	186.9	205.4
	6 OPzS 600	31.9	56.7	67.0	92.0	124.4	152.2	173.0	200.6	219.2	240.4
	7 OPzS 700	37.8	67.1	79.3	108.8	146.8	179.3	203.7	236.0	257.8	282.6
	8 OPzS 800	42.5	75.6	89.4	123.1	166.7	204.1	232.6	270.0	295.8	325.4
	9 OPzS 900	48.0	85.4	101.0	138.9	187.9	229.9	261.7	303.6	332.3	365.2
	10 OPzS 1000	52.9	94.3	111.6	153.7	208.3	255.1	290.7	337.5	369.8	407.0
	12 OPzS 1200	63.4	112.9	133.4	183.3	247.4	302.3	343.3	397.4	434.0	475.0
	11 OPzS 1400	74.7	131.2	154.4	209.3	277.7	335.5	375.7	431.0	463.0	503.0
	12 OPzS 1500	80.5	141.6	166.8	226.3	300.6	363.4	407.0	467.0	503.0	545.0
	14 OPzS 1700	95.8	168.0	197.7	268.0	355.2	429.0	480.0	550.0	592.0	642.0
	15 OPzS 1875	101.8	178.8	210.5	285.8	379.6	459.0	515.0	590.0	635.0	690.0
	16 OPzS 2000	107.6	189.8	223.7	304.4	406.0	492.0	553.0	637.0	688.0	749.0
	20 OPzS 2500	136.9	241.1	284.0	386.1	515.0	625.0	702.0	809.0	874.0	952.0
	24 OPzS 3000	162.5	286.0	336.9	458.0	610.0	739.0	831.0	954.0	1029.0	1119.0

Discharge Table in Amperes

End voltage 1.85 V/per cell

Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
6V 3 OPzS 150	8.2	15.0	17.8	25.1	35.2	44.6	51.8	62.5	70.3	80.0
6V 4 OPzS 200	10.6	19.4	23.1	32.7	45.9	58.4	68.0	82.0	92.1	104.8
6V 5 OPzS 250	13.6	24.6	29.4	41.3	57.9	73.1	84.8	101.8	114.0	128.7
6V 6 OPzS 300	15.8	28.8	34.4	48.6	68.1	86.3	100.1	120.3	134.6	152.3
12V 1 OPzS 50	2.9	5.2	6.2	8.7	12.2	15.4	17.8	21.5	24.1	27.5
12V 2 OPzS 100	5.3	9.6	11.6	16.4	23.1	29.6	34.6	42.0	47.3	54.3
12V 3 OPzS 150	7.9	14.5	17.3	24.5	34.5	44.0	51.2	62.0	69.8	79.7
2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
2 OPzS 100	5.8	10.6	12.5	17.5	24.3	30.8	35.3	42.4	47.5	53.8
3 OPzS 150	8.5	15.4	18.2	25.6	35.8	45.2	52.3	62.9	70.6	80.2
4 OPzS 200	10.8	19.6	23.4	33.1	46.3	58.7	68.1	82.1	92.0	104.4
5 OPzS 250	13.6	24.8	29.5	41.6	58.3	73.8	85.6	103.0	115.6	131.2
6 OPzS 300	16.4	29.7	35.3	49.8	69.6	88.1	102.1	122.7	137.4	155.5
5 OPzS 350	19.0	34.3	40.8	57.2	79.4	99.5	114.4	135.9	150.6	169.0
6 OPzS 420	22.8	41.1	49.0	68.6	95.0	118.9	136.6	161.9	179.1	200.9
7 OPzS 490	26.6	48.0	57.1	79.8	110.5	137.9	158.6	187.6	207.1	232.0
5 OPzS 500	28.0	50.2	59.5	82.4	112.8	139.1	158.8	185.7	203.1	225.8
6 OPzS 600	32.7	58.8	69.7	96.9	132.6	163.8	186.9	218.4	238.7	264.7
7 OPzS 700	38.9	69.8	82.6	114.5	156.3	192.9	220.0	256.9	280.8	311.3
8 OPzS 800	43.5	78.5	93.2	129.5	177.5	219.7	251.2	294.0	321.7	357.9
9 OPzS 900	49.3	88.7	105.2	146.2	200.2	247.4	282.5	330.6	361.5	402.0
10 OPzS 1000	54.4	97.9	116.2	161.6	221.8	274.4	313.7	367.5	402.0	447.0
12 OPzS 1200	65.2	117.3	139.1	193.0	263.8	325.3	371.0	433.0	473.0	523.0
11 OPzS 1400	76.9	136.7	161.5	221.6	298.1	361.5	409.0	469.0	508.0	552.0
12 OPzS 1500	82.9	147.6	174.5	239.7	322.7	391.5	443.0	507.0	551.0	597.0
14 OPzS 1700	98.6	175.1	206.8	283.6	381.1	462.0	522.0	599.0	649.0	704.0
15 OPzS 1875	104.7	186.4	220.2	302.4	407.0	494.0	559.0	642.0	697.0	757.0
16 OPzS 2000	110.7	197.6	233.7	321.8	435.0	530.0	601.0	693.0	753.0	822.0
20 OPzS 2500	140.8	251.0	296.5	408.0	552.0	672.0	762.0	878.0	956.0	1046.0
24 OPzS 3000	167.1	297.9	351.9	484.0	654.0	795.0	901.0	1037.0	1128.0	1228.0

Discharge Table in Amperes

End voltage 1.83 V/per cell

Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
6V 3 OPzS 150	8.4	15.3	18.2	25.8	36.5	46.8	54.7	66.6	75.0	85.9
6V 4 OPzS 200	10.8	19.9	23.7	33.6	47.6	61.2	71.7	87.3	98.4	112.6
6V 5 OPzS 250	13.9	25.2	30.1	42.5	60.0	76.7	89.5	108.6	121.8	138.6
6V 6 OPzS 300	16.1	29.6	35.2	50.0	70.7	90.5	105.8	128.3	144.2	164.0
12V 1 OPzS 50	2.9	5.3	6.3	8.9	12.6	16.1	18.8	22.8	25.7	29.4
12V 2 OPzS 100	5.4	9.9	11.9	16.8	23.9	30.9	36.4	44.6	50.4	58.1
12V 3 OPzS 150	8.0	14.8	17.7	25.1	35.7	46.0	54.0	66.0	74.4	85.5
2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
2 OPzS 100	6.0	10.8	12.8	18.0	25.3	32.2	37.5	45.2	50.7	57.7
3 OPzS 150	8.6	15.7	18.7	26.3	37.0	47.3	55.2	67.0	75.3	85.9
4 OPzS 200	11.0	20.1	24.0	34.0	48.0	61.6	71.9	87.4	98.4	112.2
5 OPzS 250	13.9	25.4	30.2	42.7	60.4	77.3	90.4	109.8	123.4	141.0
6 OPzS 300	16.7	30.4	36.2	51.2	72.4	92.4	107.9	130.9	147.0	167.4
5 OPzS 350	19.3	35.2	41.8	59.1	82.9	105.0	121.4	145.2	162.0	181.5
6 OPzS 420	23.2	42.1	50.1	70.7	99.3	125.4	145.0	173.0	192.8	215.9
7 OPzS 490	27.1	49.1	58.5	82.4	115.4	145.7	168.3	200.6	223.2	249.5
5 OPzS 500	28.6	51.4	61.0	85.2	118.2	147.6	169.2	199.3	219.8	244.0
6 OPzS 600	33.4	60.2	71.5	100.3	139.2	173.9	199.3	234.7	258.2	286.4
7 OPzS 700	39.7	71.4	84.7	118.6	164.2	204.8	234.5	275.8	303.5	336.7
8 OPzS 800	44.5	80.3	95.5	134.0	186.1	233.0	267.5	315.6	348.1	386.6
9 OPzS 900	50.4	90.9	107.9	151.3	209.9	262.5	301.1	355.0	391.3	434.0
10 OPzS 1000	55.5	100.3	119.1	167.3	232.5	291.0	334.2	394.5	435.0	484.0
12 OPzS 1200	66.6	120.1	142.6	199.9	277.1	345.9	395.9	465.0	511.0	566.0
11 OPzS 1400	78.8	140.5	166.4	230.9	314.7	386.5	438.0	507.0	550.0	601.0
12 OPzS 1500	84.8	151.7	179.7	249.6	340.6	419.0	475.0	549.0	596.0	652.0
14 OPzS 1700	100.9	180.1	213.2	295.5	402.0	494.0	559.0	648.0	702.0	769.0
15 OPzS 1875	107.2	191.5	226.7	314.8	430.0	528.0	600.0	694.0	754.0	826.0
16 OPzS 2000	113.3	202.9	240.5	334.5	458.0	566.0	643.0	748.0	815.0	895.0
20 OPzS 2500	144.1	257.6	305.0	424.0	580.0	717.0	815.0	948.0	1032.0	1138.0
24 OPzS 3000	171.0	305.8	362.2	504.0	689.0	850.0	965.0	1120.0	1218.0	1339.0
24 OPzS 3000	167.1	297.9	351.9	484.0	654.0	795.0	901.0	1037.0	1128.0	1228.0

Type

Discharge Table in Amperes

End voltage 1.80 V/per cell

	Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	6V 3 OPzS 150	8.5	15.6	18.6	26.5	37.8	48.9	57.8	71.4	80.9	93.8
	6V 4 OPzS 200	11.0	20.2	24.2	34.6	49.4	64.2	75.9	93.8	106.3	123.1
	6V 5 OPzS 250	14.2	25.7	30.7	43.7	62.2	80.6	95.0	117.0	131.9	151.9
	6V 6 OPzS 300	16.5	30.2	36.0	51.4	73.4	95.1	112.4	138.4	156.2	179.9
	12V 1 OPzS 50	3.0	5.4	6.4	9.1	13.0	16.8	19.9	24.5	29.6	32.1
	12V 2 OPzS 100	5.5	10.1	12.1	17.2	24.7	32.2	38.3	47.6	54.3	63.4
	12V 3 OPzS 150	8.2	15.1	18.0	25.8	36.9	48.1	57.0	70.7	80.2	93.3
	2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	2 OPzS 100	6.1	11.1	13.1	18.5	26.2	33.6	39.6	48.6	54.8	63.0
	3 OPzS 150	8.8	16.0	19.1	27.1	38.4	49.6	58.5	72.0	81.3	93.9
	4 OPzS 200	11.2	20.5	24.5	34.9	49.9	64.5	76.3	94.1	106.3	122.7
	5 OPzS 250	14.2	25.9	30.9	43.9	62.5	81.0	95.8	117.9	133.3	154.0
	6 OPzS 300	17.0	31.1	37.0	52.7	74.9	97.0	114.5	140.9	159.0	183.3
Type	5 OPzS 350	19.7	36.0	42.9	61.0	86.4	110.8	130.0	157.8	176.8	200.9
	6 OPzS 420	23.7	43.1	51.4	73.0	103.4	132.7	155.4	188.3	210.7	239.1
	7 OPzS 490	27.7	50.2	59.9	85.0	120.5	154.5	180.5	218.5	244.1	276.5
	5 OPzS 500	29.2	52.7	62.7	88.3	124.0	157.2	182.4	217.9	241.9	270.2
	6 OPzS 600	34.0	61.8	73.6	103.8	146.0	185.5	215.1	256.8	284.6	317.5
	7 OPzS 700	40.5	73.3	87.1	122.6	172.4	218.6	253.2	301.9	334.5	373.0
	8 OPzS 800	45.4	82.4	98.1	138.5	195.3	248.4	288.3	345.3	383.2	429.0
	9 OPzS 900	51.4	93.1	110.9	156.4	220.3	279.8	324.7	388.2	431.0	482.0
	10 OPzS 1000	56.6	102.8	122.4	172.9	243.8	310.1	360.2	431.0	479.0	535.0
	12 OPzS 1200	67.9	123.3	146.7	206.9	291.1	369.4	428.0	510.0	564.0	628.0
	11 OPzS 1400	80.2	144.6	171.8	240.1	333.5	417.0	477.0	559.0	611.0	672.0
	12 OPzS 1500	86.5	156.1	185.5	259.6	361.0	451.0	517.0	604.0	662.0	728.0
	14 OPzS 1700	102.9	185.4	219.9	307.3	426.0	533.0	609.0	713.0	781.0	858.0
	15 OPzS 1875	109.2	197.1	234.0	327.1	455.0	570.0	652.0	764.0	838.0	922.0
	16 OPzS 2000	115.5	208.6	247.9	347.4	484.0	608.0	699.0	822.0	904.0	998.0
	20 OPzS 2500	146.9	264.7	314.4	440.0	612.0	770.0	884.0	1041.0	1146.0	1265.0
	24 OPzS 3000	174.4	314.5	373.7	523.0	729.0	913.0	1048.0	1232.0	1353.0	1491.0

Discharge Table in Amperes

End voltage 1.75 V/per cell

Monoblocks		20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
6V 3 OPzS 150		8.7	16.1	19.1	27.2	38.9	51.0	60.9	76.6	88.2	104.5
6V 4 OPzS 200		11.3	20.8	24.8	35.5	50.9	66.8	80.0	100.8	116.3	137.5
6V 5 OPzS 250		14.5	26.5	31.5	44.9	64.4	84.3	100.4	126.0	144.8	170.5
6V 6 OPzS 300		16.9	31.0	37.0	52.9	75.9	99.6	118.9	149.4	171.8	202.3
12V 1 OPzS 50		3.0	5.6	6.6	9.4	13.4	17.5	20.8	26.1	30.1	35.6
12V 2 OPzS 100		5.6	10.4	12.4	17.7	25.5	33.5	40.2	50.8	58.8	70.1
12V 3 OPzS 150		8.4	15.5	18.5	26.5	38.1	50.1	60.0	75.7	87.4	103.9
2V cells		20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
Type	2 OPzS 100	6.2	11.3	13.5	19.0	27.1	35.2	41.8	52.2	59.9	70.4
	3 OPzS 150	9.0	16.4	19.5	27.7	39.6	51.7	61.6	77.3	88.9	104.8
	4 OPzS 200	11.5	21.1	25.2	35.9	51.4	67.3	80.4	101.1	116.3	137.4
	5 OPzS 250	14.5	26.5	31.7	45.1	64.7	84.6	100.9	126.9	146.0	172.3
	6 OPzS 300	17.5	31.8	38.0	54.1	77.5	101.4	120.9	151.7	174.3	205.4
	5 OPzS 350	20.2	37.1	44.1	62.6	89.6	116.7	138.7	172.3	196.4	228.0
	6 OPzS 420	24.3	44.4	52.9	75.0	107.4	139.8	166.0	206.1	234.5	271.8
	7 OPzS 490	28.3	51.7	61.6	87.5	125.1	162.8	193.2	239.5	272.1	314.6
	5 OPzS 500	29.9	54.3	64.5	91.0	129.5	167.1	196.9	241.4	271.8	309.8
	6 OPzS 600	34.9	63.7	75.7	107.2	152.8	197.4	232.8	285.1	320.8	365.2
	7 OPzS 700	41.5	75.5	89.5	126.6	180.2	232.4	273.8	335.2	376.9	429.0
	8 OPzS 800	46.6	84.9	100.9	142.9	203.8	263.7	311.3	382.4	431.0	491.0
	9 OPzS 900	52.8	96.0	114.0	161.4	230.1	297.4	350.9	430.0	485.0	552.0
	10 OPzS 1000	58.1	105.9	125.9	178.4	254.5	329.2	388.9	478.0	538.0	615.0
	12 OPzS 1200	69.8	127.0	150.9	213.8	304.8	393.6	464.0	568.0	638.0	723.0
	11 OPzS 1400	82.5	148.9	176.6	248.8	351.5	449.0	524.0	630.0	698.0	780.0
	12 OPzS 1500	88.9	160.8	190.8	269.1	380.5	487.0	568.0	683.0	757.0	846.0
	14 OPzS 1700	105.8	190.8	226.3	318.5	449.0	575.0	669.0	804.0	892.0	996.0
	15 OPzS 1875	112.2	202.9	240.6	339.0	479.0	613.0	716.0	861.0	957.0	1069.0
	16 OPzS 2000	118.6	214.9	255.0	359.7	510.0	654.0	765.0	924.0	1030.0	1155.0
	20 OPzS 2500	150.9	272.7	323.2	455.0	645.0	828.0	968.0	1169.0	1303.0	1464.0
	24 OPzS 3000	179.2	323.8	384.2	542.0	767.0	983.0	1149.0	1386.0	1542.0	1729.0

Discharge Table in Amperes

End voltage 1.70 V/per cell

	Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	6V 3 OPzS 150	-	16.3	19.4	27.6	39.8	52.4	62.7	79.5	92.5	111.4
	6V 4 OPzS 200	-	21.1	25.2	36.0	52.1	68.6	82.3	104.7	122.0	147.1
	6V 5 OPzS 250	-	26.8	31.9	45.7	65.8	86.5	103.6	131.4	152.5	183.2
	6V 6 OPzS 300	-	31.4	37.5	53.7	77.6	102.1	122.6	155.9	181.3	217.8
	12V 1 OPzS 50	-	5.6	6.7	9.5	13.7	18.0	21.4	27.1	31.5	37.8
	12V 2 OPzS 100	-	10.6	12.6	17.9	26.0	34.3	41.3	52.6	61.6	74.4
	12V 3 OPzS 150	-	15.7	18.8	26.9	38.9	51.4	61.7	78.5	91.6	110.8
	2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	2 OPzS 100	-	11.4	13.7	19.4	27.6	36.1	43.0	54.3	62.8	75.2
	3 OPzS 150	-	16.6	19.8	28.2	40.5	53.1	63.4	80.1	93.2	112.0
	4 OPzS 200	-	21.4	25.5	36.5	52.6	69.1	82.8	105.1	122.3	147.3
	5 OPzS 250	-	26.9	32.1	45.8	66.0	86.8	104.0	131.9	153.3	184.4
	6 OPzS 300	-	32.3	38.6	54.9	79.2	103.9	124.4	158.0	183.5	220.4
Type	5 OPzS 350	-	37.5	44.7	63.7	91.7	120.0	143.5	180.9	209.0	248.1
	6 OPzS 420	-	45.0	53.6	76.4	110.1	143.7	172.0	216.6	250.1	296.1
	7 OPzS 490	-	52.4	62.5	89.2	128.3	167.5	200.3	252.2	290.8	343.7
	5 OPzS 500	-	55.0	65.5	92.9	132.7	172.4	205.5	256.3	293.1	342.0
	6 OPzS 600	-	64.6	76.9	109.3	156.6	203.9	243.1	303.5	346.9	404.0
	7 OPzS 700	-	76.5	91.0	129.3	184.7	240.2	286.0	356.4	407.0	474.0
	8 OPzS 800	-	86.1	102.5	145.9	209.0	272.2	324.9	406.0	465.0	543.0
	9 OPzS 900	-	97.3	115.8	164.8	235.9	307.1	366.2	457.0	523.0	611.0
	10 OPzS 1000	-	107.4	127.9	182.0	260.9	339.9	406.0	507.0	581.0	679.0
	12 OPzS 1200	-	128.8	153.4	218.3	312.4	407.0	485.0	605.0	690.0	802.0
	11 OPzS 1400	-	151.5	179.9	254.7	361.5	468.0	553.0	680.0	767.0	874.0
	12 OPzS 1500	-	163.5	194.4	275.5	391.5	508.0	600.0	737.0	832.0	949.0
	14 OPzS 1700	-	194.0	230.5	326.0	462.0	598.0	706.0	868.0	978.0	1117.0
	15 OPzS 1875	-	206.2	245.1	347.0	493.0	639.0	755.0	928.0	1048.0	1198.0
	16 OPzS 2000	-	218.3	259.5	367.9	524.0	680.0	805.0	994.0	1125.0	1291.0
	20 OPzS 2500	-	276.9	328.9	466.0	662.0	858.0	1015.0	1255.0	1421.0	1634.0
	24 OPzS 3000	-	329.0	391.1	554.0	788.0	1022.0	1209.0	1491.0	1687.0	1934.0

Discharge Table in Amperes

End voltage 1.65 V/per cell

	Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	6V 3 OPzS 150	-	-	16.9	28.0	40.3	53.0	63.9	81.5	95.4	116.1
	6V 4 OPzS 200	-	-	25.5	36.4	52.8	69.6	83.8	107.4	125.7	153.5
	6V 5 OPzS 250	-	-	32.4	46.3	66.8	87.7	105.6	134.7	157.5	191.4
	6V 6 OPzS 300	-	-	38.0	54.4	78.7	103.8	125.2	160.0	187.3	228.0
	12V 1 OPzS 50	-	-	6.8	9.7	13.9	18.2	21.8	27.8	32.4	39.3
	12V 2 OPzS 100	-	-	12.8	18.2	26.4	34.8	42.0	53.8	63.3	77.4
	12V 3 OPzS 150	-	-	19.0	27.2	39.5	52.0	62.8	80.4	94.3	115.4
	2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
	2 OPzS 100	-	-	13.8	19.5	28.0	36.5	43.8	55.6	64.7	78.4
	3 OPzS 150	-	-	20.1	28.5	41.0	53.8	64.7	82.3	96.0	116.7
	4 OPzS 200	-	-	25.9	36.9	53.3	70.2	84.4	107.9	126.1	153.6
	5 OPzS 250	-	-	32.6	46.4	66.9	87.9	105.9	135.2	158.2	192.6
	6 OPzS 300	-	-	39.0	55.6	80.3	105.5	127.0	162.0	189.4	230.2
Type	5 OPzS 350	-	-	45.3	64.6	93.0	122.2	146.9	186.3	217.5	262.1
	6 OPzS 420	-	-	54.3	77.5	111.5	146.5	176.1	223.3	260.3	313.3
	7 OPzS 490	-	-	63.3	90.3	130.0	170.8	205.3	260.1	302.9	364.2
	5 OPzS 500	-	-	66.3	94.1	134.7	176.2	210.4	265.4	307.0	365.2
	6 OPzS 600	-	-	77.9	110.8	159.1	208.5	249.2	315.0	364.3	433.0
	7 OPzS 700	-	-	92.2	131.0	187.7	245.6	293.3	369.9	428.0	508.0
	8 OPzS 800	-	-	103.9	147.7	212.3	278.2	332.8	421.0	487.0	580.0
	9 OPzS 900	-	-	117.3	166.9	239.6	313.8	375.3	474.0	549.0	652.0
	10 OPzS 1000	-	-	129.6	184.4	265.0	347.4	416.0	525.0	609.0	726.0
	12 OPzS 1200	-	-	155.4	221.1	317.6	416.0	497.0	629.0	726.0	861.0
	11 OPzS 1400	-	-	182.3	258.2	368.5	479.0	570.0	713.0	815.0	950.0
	12 OPzS 1500	-	-	196.9	279.3	399.1	520.0	619.0	772.0	885.0	1032.0
	14 OPzS 1700	-	-	233.4	330.4	471.0	613.0	727.0	909.0	1039.0	1212.0
	15 OPzS 1875	-	-	248.2	351.7	502.0	654.0	777.0	972.0	1114.0	1301.0
16 OPzS 2000	-	-	262.9	372.9	534.0	695.0	829.0	1037.0	1191.0	1398.0	
20 OPzS 2500	-	-	333.2	472.0	674.0	878.0	1044.0	1308.0	1502.0	1764.0	
24 OPzS 3000	-	-	396.2	561.0	803.0	1045.0	1245.0	1558.0	1788.0	2094.0	

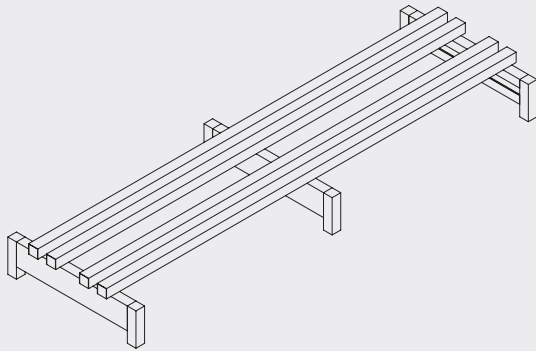
Discharge Table in Amperes

End voltage 1.60 V/per cell

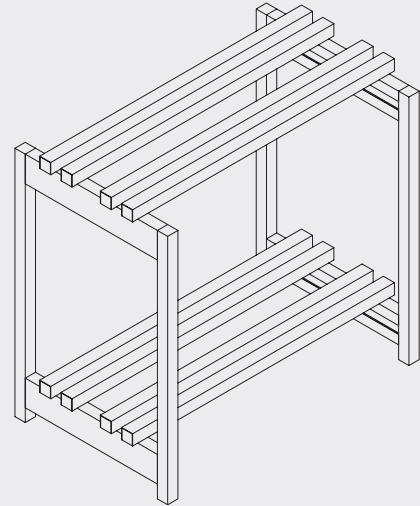
	Monoblocks	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
6V 3 OPzS 150	-	-	-	28.4	40.8	53.7	64.6	82.8	97.3	119.4	
6V 4 OPzS 200	-	-	-	36.9	53.4	70.4	85.1	109.1	128.5	157.9	
6V 5 OPzS 250	-	-	-	46.9	67.6	89.0	107.1	137.1	161.2	197.4	
6V 6 OPzS 300	-	-	-	55.1	79.7	105.2	127.0	162.8	191.8	235.3	
12V 1 OPzS 50	-	-	-	9.81	14.1	18.5	22.1	28.2	33.0	40.4	
12V 2 OPzS 100	-	-	-	18.4	26.7	35.3	42.6	54.7	64.5	79.5	
12V 3 OPzS 150	-	-	-	27.6	40.0	52.7	63.7	81.7	96.3	118.7	
	2V cells	20 h	10 h	8 h	5 h	3 h	2 h	1.5 h	1 h	45 min	30 min
2 OPzS 100	-	-	-	19.8	28.4	37.1	44.4	56.6	66.2	80.7	
3 OPzS 150	-	-	-	28.9	41.5	54.5	65.5	83.6	98.1	119.9	
4 OPzS 200	-	-	-	37.4	53.9	71.7	85.7	109.6	129.0	158.2	
5 OPzS 250	-	-	-	47.0	67.7	89.2	107.5	137.5	161.6	198.2	
6 OPzS 300	-	-	-	56.4	81.3	107.0	128.9	164.8	193.8	237.3	
5 OPzS 350	-	-	-	65.4	94.3	123.9	149.0	190.3	223.1	271.9	
6 OPzS 420	-	-	-	78.5	113.0	148.5	178.7	228.2	267.1	325.3	
7 OPzS 490	-	-	-	91.5	131.8	173.1	208.3	265.9	311.1	378.3	
5 OPzS 500	-	-	-	95.3	136.5	178.7	214.2	271.7	316.3	381.8	
6 OPzS 600	-	-	-	112.2	161.3	211.4	253.8	322.3	375.7	453.0	
7 OPzS 700	-	-	-	132.6	190.2	248.9	298.5	378.6	441.0	531.0	
8 OPzS 800	-	-	-	149.6	215.0	282.1	338.7	431.0	502.0	607.0	
9 OPzS 900	-	-	-	169.0	242.7	318.1	381.9	485.0	566.0	682.0	
10 OPzS 1000	-	-	-	186.8	268.5	352.2	423.0	538.0	627.0	758.0	
12 OPzS 1200	-	-	-	224.1	321.9	422.0	507.0	643.0	750.0	903.0	
11 OPzS 1400	-	-	-	261.6	373.5	488.0	584.0	733.0	847.0	1007.0	
12 OPzS 1500	-	-	-	282.9	405.0	529.0	632.0	796.0	920.0	1094.0	
14 OPzS 1700	-	-	-	334.7	478.0	623.0	744.0	936.0	1081.0	1284.0	
15 OPzS 1875	-	-	-	356.3	509.0	664.0	795.0	1000.0	1156.0	1376.0	
16 OPzS 2000	-	-	-	377.8	541.0	706.0	845.0	1066.0	1236.0	1475.0	
20 OPzS 2500	-	-	-	478.0	683.0	891.0	1065.0	1344.0	1558.0	1860.0	
24 OPzS 3000	-	-	-	569.0	813.0	1063.0	1271.0	1602.0	1856.0	2211.0	

Indicative Installation Racks

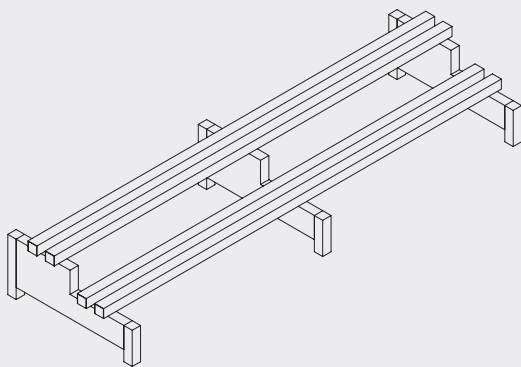
Rack 1 floor - 2 rows



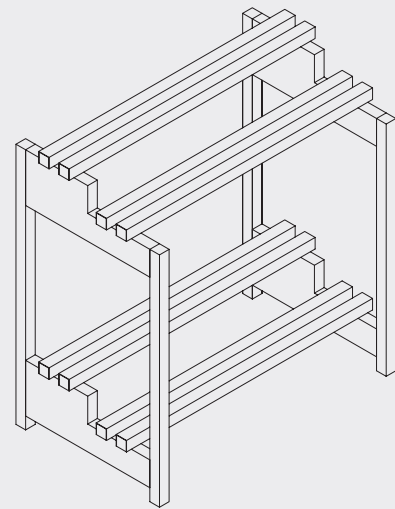
Rack 2 floors - 2 rows



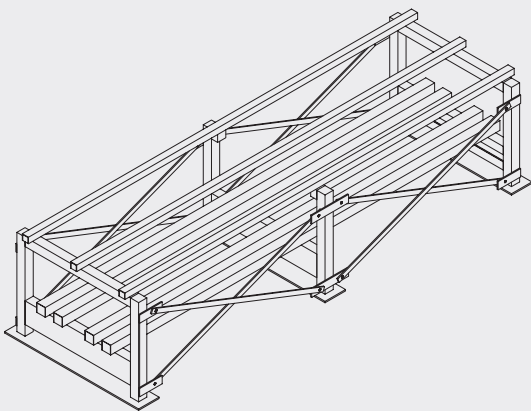
Rack 1 floor - 2 steps



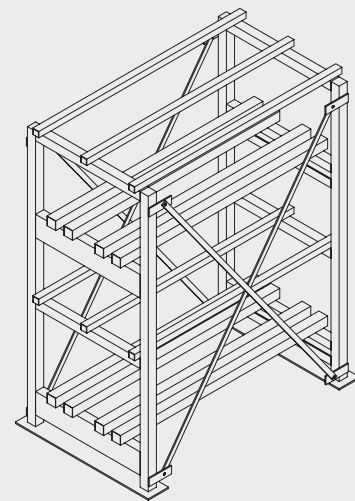
Rack 2 floors - 2 steps



Rack 1 floor - 2 rows (antiseismic)



Rack 2 floors - 2 rows (antiseismic)





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SUNLIGHT MANUFACTURING PLANT

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 m², with indoor areas of more than 40,000 m², 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

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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