



General Features

- High Capacity
- Long Life Time
- Reduced Maintenance
- Low Self-Discharge
- Quick and Simple Acid Level Control
- Economical Water Consumption
- Low, Constant Maintenance Current

MTI's Stationary OPzS type batteries are characterized by field-proven, long life, reduced maintenance requirements and low self-discharge. These batteries are an excellent choice for a wide variety of applications including utilities, telecommunications, computers, emergency lighting, alarms, control and monitoring systems in power plants, transmission and distribution substations, railway stations, and airports.

The MTI OPzS cell has two main areas that reduce its maintenance requirement and make it an excellent choice for your backup power needs: durable transparent case and low water consumption. The individual cases are made of styrenacrylonitrile (SAN), in accordance with DIN 40736 and IEC 896 regulations, which is extremely resistant to chemical influences and mechanical damage. It also allows for fast and accurate visual assessment of electrolyte levels. The low water consumption leads to an average topping up interval of 2 years.

Cells are available filled and fully charged and can be used immediately. Capacity tests are performed at the factory prior to dispatch, and may be re-confirmed on site by the end user when required. Upon request cells can be shipped dry, with a special process to prevent plate oxidation, allowing for longer term storage. When shipped dry, they will need to be filled and provided a supplementary charge before entering service.

Construction

The grids of the positive and negative plate are made of special alloys with additional agents for the improvement of the crystalline structure in casting.

Positive Electrode – Tubular plate with low antimony alloy (<2%)

The positive armor plate is of a tubular design, which prevents the potential escape of the active material during operation, and ensures a long operating life. The active substance (PbO₂) is contained in special bags made of polyester fibers, and hardened by an impregnating compound eliminating active material shedding.

Negative Electrode – Flat with extended life active material

Negative plates are mass-type plates with special alloys maintaining a porosity of active material during the operation.

Separator – Microporous plastic separator

Low electrical resistance for higher efficiency and lower self-discharge rates.

Container – High impact, transparent SAN

The electrolyte level is clearly visible, while maximum and minimum levels are marked on a self-adhesive acid-resistant label on the side of the container.

Cell Plugs – Ceramic plugs (filters) according to DIN 40740

Prevents leakage of any sulphuric acid vapors without restricting hydrogen and oxygen flow.

Other

Lid – ABS

Pole Sealing – 100% gas and electrolyte tight sliding pole

Protection – IP 25 according to DIN 40050, touch protected according to VBG 4

Connector – Flexible insulated copper cable



Product Information

OPzS Cell Type	Capacity (C ₁₀ at 1.80V)	Dimensions (mm)			Number of Poles	Weight (kg)	
		L	W	H		Dry	Filled
2 OPzS 100	107	103	206	420	2	8.7	13.7
3 OPzS 150	155	103	206	420	2	11	16
4 OPzS 200	208	103	206	420	2	13	18
5 OPzS 250	259	124	206	420	2	16	22
6 OPzS 300	310	145	206	420	2	18	26
5 OPzS 350	380	124	206	536	2	20	29
6 OPzS 420	454	145	206	536	2	24	34
7 OPzS 490	532	166	206	536	2	28	39
6 OPzS 600	640	145	206	711	2	35	50
8 OPzS 800	853	210	191	711	4	46	65
10 OPzS 1000	1065	210	233	711	4	57	80
12 OPzS 1200	1278	210	275	711	4	66	93
12 OPzS 1500	1613	210	275	861	4	88	119
16 OPzS 2000	2143	212	397	837	6	115	160
20 OPzS 2500	2675	212	487	837	8	145	200
24 OPzS 3000	3208	212	576	837	8	170	240

Operational Data

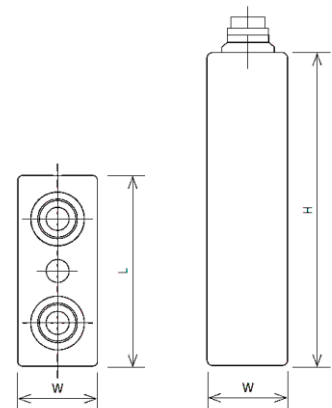
Design Life – Up to 20 years

IEC 896-1 Cycles – 1500

Self-discharge – 2% per month at 20°C

Operational Temperature – -20°C to 55°C, recommended 10°C to 30°C

Electrolyte – Sulphuric Acid with Density of 1.24kg/l at 20°C (+/- 0.01)



Discharge Tables - Constant Current (A)

2V Cells - Final Voltage 1.83V/cell

OPzS Cell Type	Time										
	15 min	30 min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	20 Hr
2 OPzS 100	76	63	46	32	25	20	17	14	12	10	4
3 OPzS 150	109	90	67	46	35	30	25	22	18	15	6
4 OPzS 200	145	119	88	61	48	39	34	29	23	20	9
5 OPzS 250	180	148	110	76	59	49	42	36	29	25	12
6 OPzS 300	215	177	131	91	71	59	50	43	35	30	15
5 OPzS 350	220	193	153	102	85	70	61	53	43	36	20
6 OPzS 420	262	229	182	129	102	84	73	63	52	44	24
7 OPzS 490	304	266	220	150	118	98	85	73	61	51	29
6 OPzS 600	317	290	238	177	141	118	101	88	73	62	34
8 OPzS 800	430	372	321	238	189	158	136	118	98	83	46
10 OPzS 1000	533	487	400	297	236	198	170	146	122	103	57
12 OPzS 1200	635	582	477	356	282	237	204	176	146	124	68
12 OPzS 1500	662	626	551	427	343	289	252	220	183	154	86
16 OPzS 2000	888	847	741	570	457	384	336	294	244	205	114
20 OPzS 2500	1,110	1,058	926	712	570	481	419	367	304	256	142
24 OPzS 3000	1,319	1,257	1,104	851	683	576	503	441	365	307	171

2V Cells - Final Voltage 1.81V/cell

OPzS Cell Type	Time										
	15 min	30 min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	20 Hr
2 OPzS 100	82	67	49	35	26	21	18	15	12	10	5
3 OPzS 150	118	96	70	49	37	31	26	23	18	15	7
4 OPzS 200	159	128	93	63	49	41	35	30	24	20	11
5 OPzS 250	197	159	116	79	61	51	43	38	30	25	13
6 OPzS 300	235	190	139	95	73	61	52	45	36	30	16
5 OPzS 350	240	208	162	113	88	72	63	54	44	37	21
6 OPzS 420	286	248	193	134	105	87	75	65	53	44	25
7 OPzS 490	332	287	227	157	123	101	88	76	62	52	29
6 OPzS 600	357	316	255	186	147	122	105	91	75	63	35
8 OPzS 800	440	420	345	250	197	164	141	121	100	84	46
10 OPzS 1000	602	530	429	312	246	205	176	151	125	105	58
12 OPzS 1200	717	633	512	373	295	246	211	182	151	126	70
12 OPzS 1500	747	704	595	453	361	302	263	229	189	159	89
16 OPzS 2000	1003	945	800	605	481	403	350	304	251	211	118
20 OPzS 2500	1253	1179	999	756	600	503	437	381	314	263	148
24 OPzS 3000	1488	1402	1191	903	720	603	524	457	377	316	177

2V Cells - Final Voltage 1.80V/cell

OPzS Cell Type	Time										
	15 min	30 min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	20 Hr
2 OPzS 100	86	69	50	36	26	21	18	15	13	10	6
3 OPzS 150	122	99	72	50	38	31	27	23	18	15	8
4 OPzS 200	166	133	96	64	50	41	35	30	24	20	11
5 OPzS 250	206	165	119	80	62	52	44	38	31	25	14
6 OPzS 300	245	197	143	96	75	62	53	46	37	31	17
5 OPzS 350	251	215	166	115	89	74	64	55	45	38	21
6 OPzS 420	298	257	198	137	107	88	77	66	54	45	25
7 OPzS 490	346	298	230	160	126	103	89	77	63	53	29
6 OPzS 600	378	328	264	190	150	124	107	93	76	64	35
8 OPzS 800	446	444	357	256	201	167	143	123	102	85	47
10 OPzS 1000	637	552	444	319	251	208	179	154	127	106	58
12 OPzS 1200	757	659	530	381	301	250	214	185	153	127	70
12 OPzS 1500	790	743	617	466	370	309	268	233	192	161	91
16 OPzS 2000	1,061	993	829	623	493	412	357	310	255	214	129
20 OPzS 2500	1,325	1,240	1,035	778	615	514	446	388	319	267	150
24 OPzS 3000	1,573	1,475	1,235	930	738	617	535	465	383	320	180

2V Cells- Final Voltage 1.75V/cell

OPzS Cell Type	Time										
	15 min	30 min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	20 Hr
2 OPzS 100	100	76	54	36	27	22	19	15	13	10	6
3 OPzS 150	142	109	77	51	39	31	27	23	19	15	8
4 OPzS 200	195	148	104	68	52	43	36	30	25	21	11
5 OPzS 250	242	184	129	85	65	53	45	38	31	26	14
6 OPzS 300	289	220	154	102	78	63	54	46	37	31	17
5 OPzS 350	297	244	183	123	93	76	65	56	46	38	21
6 OPzS 420	353	291	218	147	112	91	78	67	55	46	25
7 OPzS 490	410	337	252	171	130	106	91	78	64	54	29
6 OPzS 600	449	380	300	206	158	130	110	92	77	65	35
8 OPzS 800	610	514	405	277	212	174	147	123	102	86	47
10 OPzS 1000	756	639	504	345	265	217	183	155	128	108	59
12 OPzS 1200	900	762	601	412	318	260	220	185	153	130	71
12 OPzS 1500	949	863	701	511	398	329	283	240	198	165	93
16 OPzS 2000	1,287	1,167	942	683	530	438	377	321	264	220	123
20 OPzS 2500	1,608	1,457	1,177	853	662	547	471	400	329	275	154
24 OPzS 3000	1,911	1,733	1,408	1,017	794	655	565	481	398	329	185

2V Cells- Final Voltage 1.70V/cell

OPzS Cell Type	Time										
	15 min	30 min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	20 Hr
2 OPzS 100	108	86	58	36	27	22	19	15	13	11	6
3 OPzS 150	155	122	83	52	40	31	28	23	19	15	8
4 OPzS 200	215	164	110	70	53	43	37	31	26	21	11
5 OPzS 250	267	204	138	87	66	53	46	40	32	26	14
6 OPzS 300	319	244	164	104	79	64	56	47	38	31	17
5 OPzS 350	336	268	193	125	94	76	67	58	47	38	21
6 OPzS 420	400	320	234	149	113	92	80	69	57	46	25
7 OPzS 490	464	371	267	174	132	107	94	81	66	53	29
6 OPzS 600	513	427	322	215	162	131	113	96	79	65	36
8 OPzS 800	697	577	435	290	218	176	152	128	105	87	48
10 OPzS 1000	864	718	540	361	272	221	189	161	132	110	60
12 OPzS 1200	1,028	856	645	431	325	264	229	193	158	131	72
12 OPzS 1500	1161	1,007	770	541	414	337	292	250	204	167	93
16 OPzS 2000	1573	1364	1035	723	551	448	388	333	272	222	124
20 OPzS 2500	1964	1702	1292	903	688	560	485	416	339	277	156
24 OPzS 3000	2337	2025	1540	1078	825	671	58	499	410	332	186

Discharge Tables - Constant Power (W/cell)

2V Cells - Final Voltage 1.81V/cell

OPzS Cell Type	Time										
	15 min	30 min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	20 Hr
2 OPzS 100	151	123	91	65	49	41	35	29	25	21	11
3 OPzS 150	217	176	131	92	70	59	50	44	36	30	15
4 OPzS 200	292	236	173	119	94	77	67	58	47	40	22
5 OPzS 250	362	293	215	148	116	97	83	73	59	50	27
6 OPzS 300	431	349	257	177	139	115	99	87	71	59	33
5 OPzS 350	441	382	299	211	166	138	120	104	86	72	41
6 OPzS 420	524	455	356	252	199	165	144	125	103	86	49
7 OPzS 490	607	528	419	294	233	192	167	146	121	101	58
6 OPzS 600	655	580	472	348	278	232	200	174	145	122	69
8 OPzS 800	807	771	636	467	372	311	268	232	194	163	92
10 OPzS 1000	1102	974	792	583	464	388	335	289	242	203	114
12 OPzS 1200	1311	1162	946	697	556	465	401	348	291	244	137
12 OPzS 1500	1368	1292	1098	847	681	573	500	437	364	306	175
16 OPzS 2000	1836	1734	1476	1131	906	762	665	581	485	407	233
20 OPzS 2500	2293	2165	1843	1413	1131	952	830	727	605	508	290
24 OPzS 3000	2722	2574	2197	1687	1356	1141	996	893	726	608	348

Storage

MTI's OPzS Type batteries are delivered filled, charged and ready for installation. If the cells cannot be installed immediately, then keep all in a fresh, clean dry room. Furthermore, considering that on open circuit batteries lose part of their capacity due to self- discharge (2% per month at 20°C / 70°F), a float recharge is recommended. Do not store the batteries without recharge longer than the periods indicated below. Float recharge consists of applying a voltage of 2.23 (+/-1 %) V/Cell for approximately 48 hours.

Duration (months)	Temperature
6-7	20°C (70°F)
4-5	30°C (90°F)
2-3	40°C (110°F)

Short Circuit and Internal Resistance

OPzS Cell Type	R _i (mΩ)/cell	Short Circuit Current (A)
2 OPzS 100	1.48	1350
3 OPzS 150	1.15	1845
4 OPzS 200	0.74	2376
5 OPzS 250	0.63	3887
6 OPzS 300	0.52	3438
5 OPzS 350	0.64	3137
6 OPzS 420	0.55	3641
7 OPzS 490	0.48	4169
6 OPzS 600	0.45	4466
8 OPzS 800	0.33	6035
10 OPzS 1000	0.26	7720
12 OPzS 1200	0.24	8814
12 OPzS 1500	0.23	8605
16 OPzS 2000	0.17	12042
20 OPzS 2500	0.13	15007
24 OPzS 3000	0.12	17390