



### 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 (PbO<sub>2</sub>) 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



### Construction - Optional Terminal Post

Our 6V and 12V monoblock designs can be manufactured with external bolted intercell connections as an option. Our standard design is to make the intercell connections inside the cell case and secure them by welding. Our standard approach removes any maintenance required for re-torquing.

The benefit of the external bolted intercell connection is that it enables technical personnel to directly access the connection points between each cell within the monoblock. This allows measurements and readings of inner/inter-cell resistance and individual cell voltages of all the cells within a battery. Each bolt head has a measuring point at the top which assures good contact with the spike probes available with most common measuring devices.

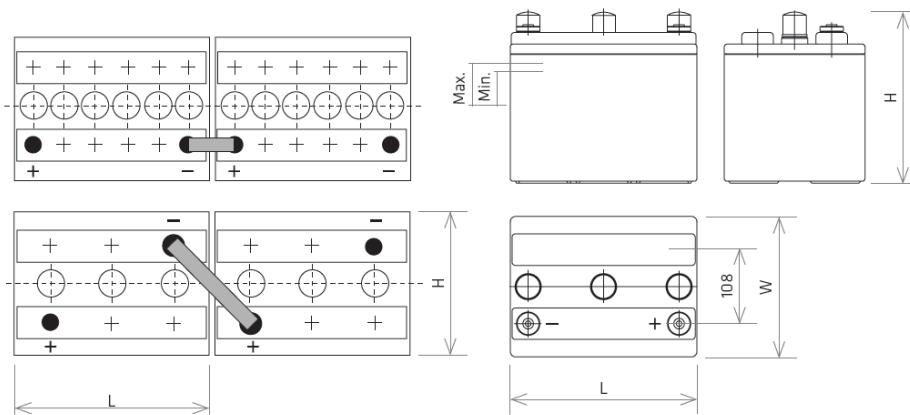


Direct measurement of voltage and resistance from the terminal post by clamp connectors can also be accommodated. Removing the rubber grommet that normally sits under the inter-cell connector will provide access to the terminal post. Removal of the grommet can be performed at installation or any time during service.

The capacity range, dimensions and electrical characteristics of these monoblocks are identical to the standard range. Please specify if you would like this option at the time of ordering.

### Product Information

OPzS Cell Type	Capacity (C <sub>10</sub> at 1.80V)	Dimensions (mm)			Number of Poles	Weight (kg)	
		L	W	H		Dry	Filled
12V 1OPzS50	51	272	205	392	2	26	39
12V 2OPzS100	103	272	205	392	2	38	50
12V 3OPzS150	154	380	205	392	2	53	69
6V 4OPzS200	204	272	205	392	2	36	47
6V 5OPzS250	255	380	205	392	2	44	61
6V 6OPzS300	307	380	205	392	2	52	68



### Short Circuit and Internal Resistance

OPzS Cell Type	R <sub>i</sub> (mΩ)/cell	Short Circuit Current (A)
12V 1OPzS50	20	613
12V 2OPzS100	9.3	1290
12V 3OPzS150	6.9	1739
6V 4OPzS200	2.2	2703
6V 5OPzS250	1.9	3175
6V 6OPzS300	1.6	3846

### Operational Data

Design Life – Up to 18 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								
	10 min	30 min	1 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	24 Hr
12V 10PzS50	38.4	32	21	12	9.7	9	6	5	2.3
12V 20PzS100	66	55	42.7	24	18.4	17	11.4	10.2	4.6
12V 30PzS150	99	82.5	64.1	36	27.6	25.5	17.1	15.3	6.9
6V 40PzS200	132	110	85.4	48	36.8	34	22.8	20.4	9.2
6V 50PzS250	165	137.5	106.8	60	46	42.5	28.5	25.5	11.5
6V 60PzS300	198	165	128.1	72	55.2	51	34.2	30.6	13.8

#### **2V Cells - Final Voltage 1.80V/cell**

OPzS Cell Type	Time								
	10 min	30 min	1 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	24 Hr
12V 10PzS50	42	35	25	13	9.6	9	7	6	2.7
12V 20PzS100	90	75	51	25	19.3	18	12	10.5	4.7
12V 30PzS150	135	112.5	76.5	37.5	29	27	18	15.8	7.1
6V 40PzS200	180	150	102	50	38.6	36	24	21	9.5
6V 50PzS250	225	187.5	127.5	62.5	48.3	45	30	26.3	11.8
6V 60PzS300	270	225	153	75	57.9	54	36	31.5	14.2

#### **2V Cells- Final Voltage 1.75V/cell**

OPzS Cell Type	Time								
	10 min	30 min	1 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	24 Hr
12V 10PzS50	46.8	39	26	13	9.7	9	7	6.1	2.7
12V 20PzS100	94.9	79.1	54	26.1	20.4	19	12.6	10.7	4.8
12V 30PzS150	142.4	118.7	81	39.2	30.6	28.5	18.9	16.0	7.2
6V 40PzS200	189.8	158.2	108	52.2	40.8	38	25.2	21.3	9.6
6V 50PzS250	237.4	197.8	135	65.3	51	47.5	31.5	26.7	12.0
6V 60PzS300	284.8	237.3	162	78.3	61.2	57	37.8	32.0	14.4

#### **2V Cells- Final Voltage 1.70V/cell**

OPzS Cell Type	Time								
	10 min	30 min	1 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	24 Hr
12V 10PzS50	49.2	41	27	13	9.5	9	7.4	6.1	2.8
12V 20PzS100	102	85	58	27	21.2	20	12.9	10.7	4.9
12V 30PzS150	153	127.5	87	40.5	31.8	30	19.4	16.1	7.3
6V 40PzS200	204	170	116	54	42.4	40	25.8	21.5	9.7
6V 50PzS250	255	212.5	145	67.5	53	50	32.3	26.9	12.2
6V 60PzS300	306	255	174	81	63.6	60	38.6	32.2	14.6