

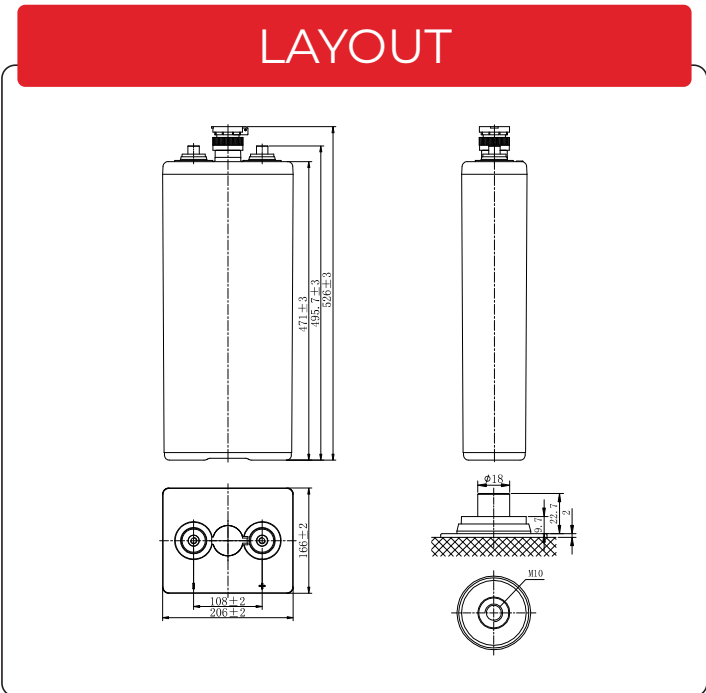
# STARMAX

## OPzS FLOODED TUBULAR BATTERIES

OPzS490-2



# OPzS490-2 (2V 490Ah)



## General Features

- ✓ 20 years design life(20°C)
- ✓ Lower self discharge
- ✓ Higher thermal capacity, no thermal runaway will occur
- ✓ Superior deep cycle performance
- ✓ Wide operation temperature range

## Applications

- ✓ Telecommunications
- ✓ Buoy lighting
- ✓ Standby power
- ✓ Railway signalling
- ✓ Emergency lighting systems
- ✓ Alternative power (solar, wind)
- ✓ Maritime standby power on ships and ashore

## Standards

- ✓ ACC. to IEC60896, DIN 40736
- ✓ Manufactured by Starmax ISO 45001, ISO 9001 and ISO 14001 certified production facilities



# SPECIFICATIONS

Rated Voltage	2V	
Nominal Capacity	C <sub>10</sub> ,1.80V/cell	490.0Ah
Dimensions	Length	166±2mm (6.53 inches)
	Width	206±3mm (8.11 inches)
	Container height	471±3mm (18.54 inches)
	Total height	526±3mm (20.71 inches)
Approx. weight	Without Electrolyte 28.2kg (62.0lbs)   With Electrolyte 38.0 kg (83.8lbs)	
Terminal	M10	
Container material	SAN transparent container	
Rated capacity (25°C)	490.0 Ah	(10hr,49.0A,1.80V/cell)
	435.0 Ah	(5hr,87.0A,1.75V/cell)
	377.7 Ah	(3hr,125.9A,1.75V/cell)
	279.8 Ah	(1hr,279.8A,1.60V/cell)
Max. discharge current	3920A (5s)	
Internal resistance (25°C)	Approx 0.75mΩ	
Operating temp. range	Discharge	-15~55°C (5~131°F)
	Charge	0~45°C (32~113°F)
	Storage	-15~45°C (5~113°F)
Nominal operating temp. range	25±5°C (77±9°F)	
Cycle Use	Initial Charging Current less than 0.15CA.Voltage 2.40V~2.45V at 20°C(68°F)Temp. Coefficient -5mV/°C	
Standby Use	Initial Charging Current less than 0.15CA. Voltage 2.23V~2.25V at 20°C(68°F)Temp. Coefficient -3mV/°C	
Effect of temp. to Capacity	40°C (104°F)	103%
	20°C (68°F)	100%
	0°C (32°F)	86%
Self discharge	≤4% per month at 20°C	

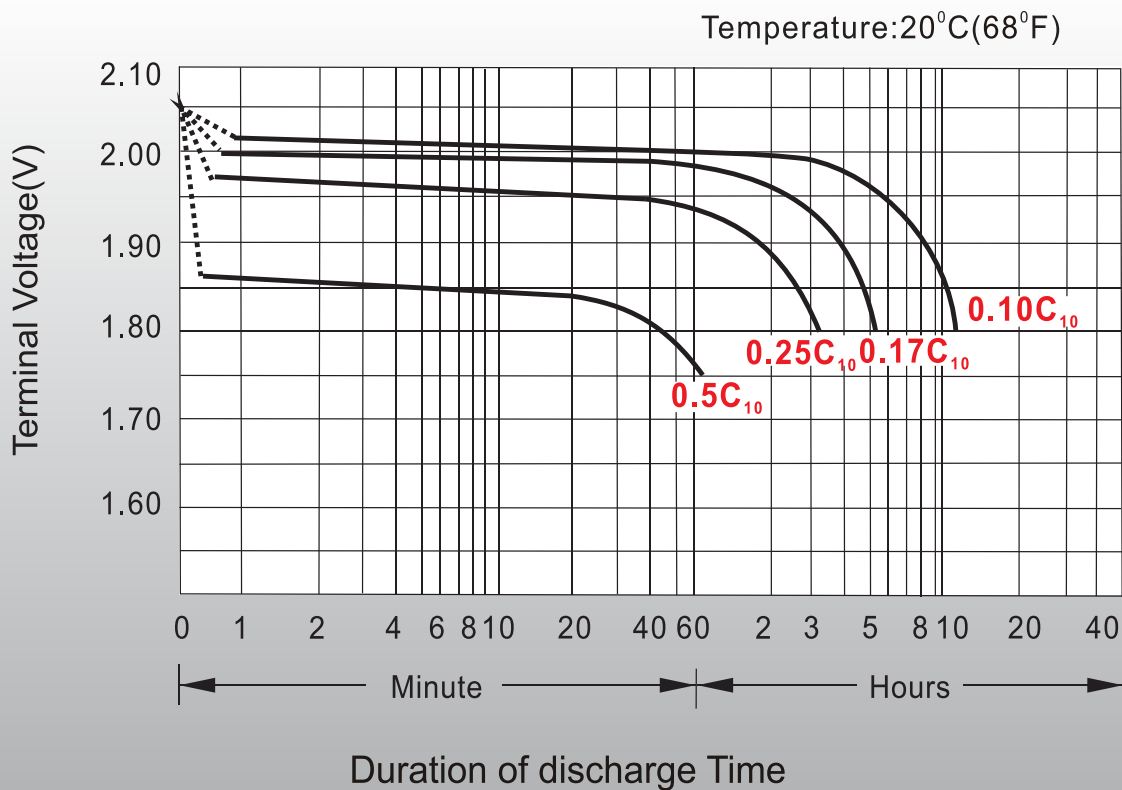
## Constant Current Discharge (Amperes) at 20°C (68°F)

F.V/Time	1h	2h	3h	4h	5h	6h	8h	10h	20h	24h	72h	100h	120h
1.85V/cell	194.5	142.1	109.4	90.6	78.2	68.7	56.0	46.9	25.8	21.6	7.76	5.82	4.98
1.80V/cell	227.4	156.6	119.6	97.9	83.4	72.9	58.9	49.0	26.8	22.5	8.06	6.04	5.18
1.75V/cell	247.0	166.6	125.9	102.3	87.0	75.7	60.5	50.1	27.3	22.9	8.21	6.15	5.27
1.70V/cell	260.2	174.0	130.0	105.5	89.4	77.6	61.6	50.9	27.8	/	/	/	/
1.65V/cell	270.5	178.1	133.9	107.9	91.4	79.1	62.7	51.8	28.2	/	/	/	/
1.60V/cell	279.8	182.3	136.2	109.5	92.6	80.2	63.4	52.4	28.4	/	/	/	/

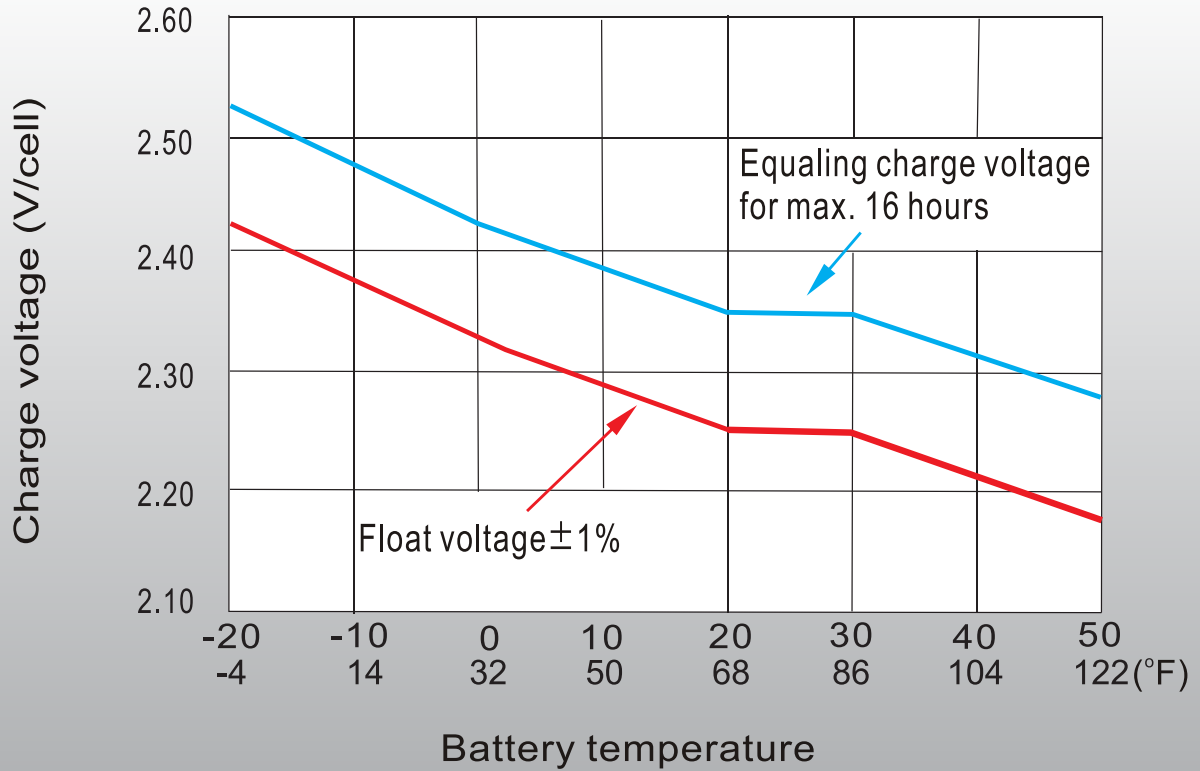
## Constant Power Discharge (Watts/Cell) at 20°C (68°F)

F.V/Time	1h	2h	3h	4h	5h	6h	8h	10h	20h	24h	72h	100h	120h
1.85V/cell	364.0	268.0	207.4	172.4	149.5	131.9	108.0	90.9	50.1	42.0	15.0	11.2	9.57
1.80V/cell	419.3	292.0	224.2	184.5	158.1	139.0	112.7	94.2	51.7	43.3	15.4	11.5	9.87
1.75V/cell	449.7	308.0	234.4	191.5	164.1	143.4	115.3	95.8	52.4	43.9	15.7	11.7	10.0
1.70V/cell	469.3	319.3	240.5	196.5	167.8	146.5	116.8	97.0	53.1	/	/	/	/
1.65V/cell	484.2	325.5	246.5	200.4	170.9	148.8	118.4	98.3	53.6	/	/	/	/
1.60V/cell	496.8	331.5	249.5	202.3	172.3	150.1	119.3	98.9	53.9	/	/	/	/

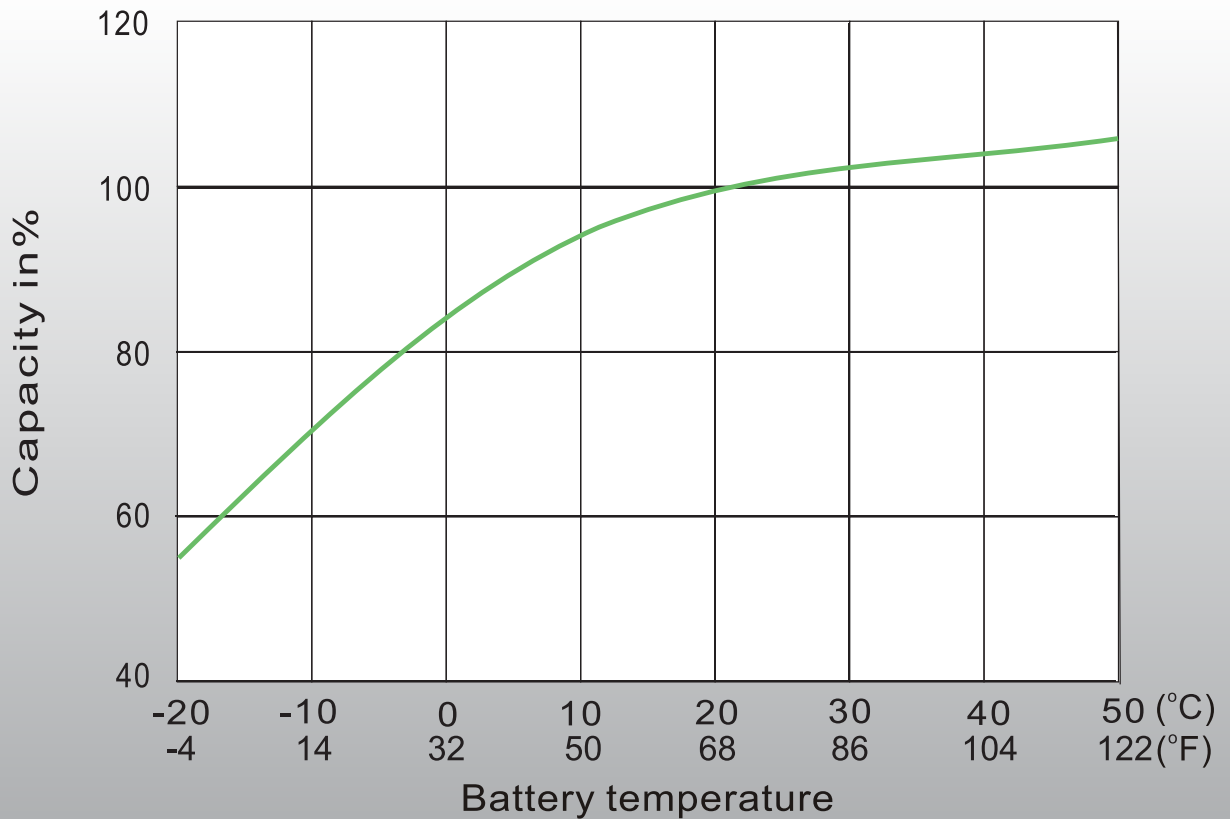
## Discharge Characteristics



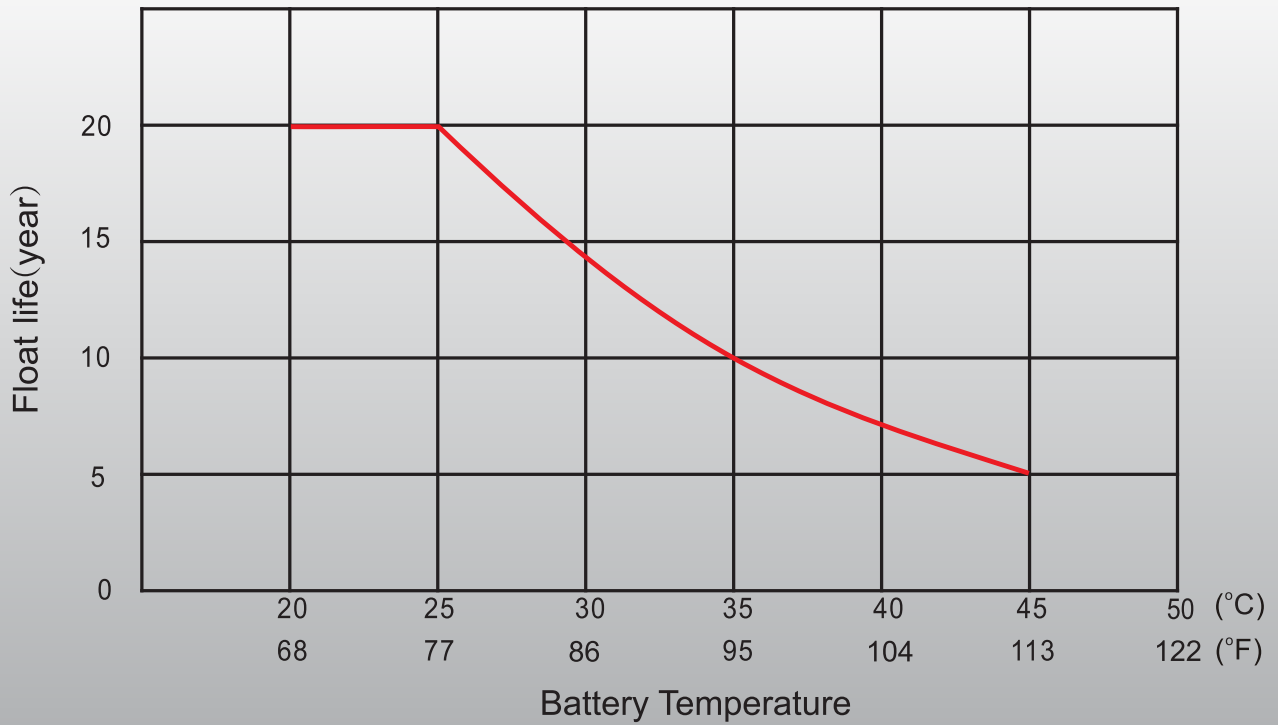
# Charge Voltage vs Ambient Temperature Curve



# Discharge Capacity vs Ambient Temp. Curve (110A)



# Effect of Temp. on Long Term Float Life





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