



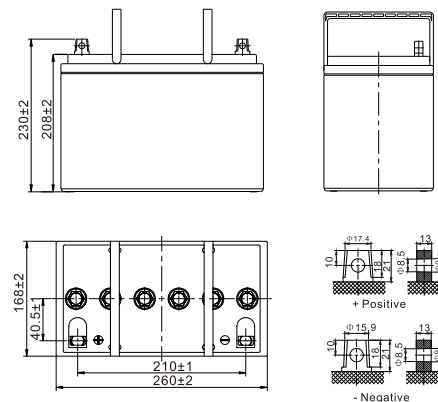
## OPzV Series-Tubular Gel 12V 3OPzV60(12V60Ah)

### Specifications

Rated Voltage	12V	
Nominal Capacity	60.0Ah	(C <sub>10</sub> , 1.80V/cell)
Dimension	Length	260mm(10.24 in.)
	Width	168mm(6.61 in.)
	Container Height	208mm(8.19 in.)
	Total Height	230mm(9.06 in.)
Approx Weight	23.7Kg (52.25 lbs)	
Terminal	T14	
Container Material	ABS	
Rated Capacity (25°C)	60.0 Ah	(10hr,6.00A,1.80V/cell)
	52.5 Ah	(5hr,10.5A,1.75V/cell)
	45.3 Ah	(3hr,15.1A,1.75V/cell)
	35.6 Ah	(1hr,35.6A,1.67V/cell)
Max. Discharge Current(5s)	480A	
Internal Resistance(25°C)	Approx.9.6mΩ	
Operating Temp.Range	Discharge	-20°C~55°C (-4°F~131°F)
	Charge	0°C~40°C (32°F~104°F)
	Storage	-20°C~50°C (-4°F~122°F)
Nominal Operating Temp. Range	25±3°C (77±5°F)	
Max.Charging Current(25°C)	15.0A	
Charge voltage(25°C)	Float	13.5V
	Temp. Coefficient	-3mV/cell/°C
	Cycle(Equalization)	14.1~14.4V
Effect of temp. to Capacity	40°C (104°F)	106%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	≤3% per month at 25°C	



### Layout



### Constant Current Discharge (Amperes) at 25 °C (77°F)

F.V/Time	10min	15min	30min	1h	2h	3h	5h	8h	10h
1.85V/cell	57.9	51.1	38.2	27.9	17.7	13.5	9.66	6.78	5.73
1.80V/cell	69.6	59.0	42.8	30.6	19.1	14.5	10.1	7.08	6.00
1.75V/cell	79.9	65.9	46.1	32.6	20.1	15.1	10.5	7.26	6.12
1.70V/cell	87.2	71.6	49.3	34.4	20.8	15.7	10.8	7.38	6.18
1.67V/cell	95.4	76.8	51.6	35.6	21.5	16.3	11.0	7.50	6.30
1.60V/cell	101.8	81.2	53.5	36.6	22.3	16.6	11.3	7.62	6.42

### Constant Power Discharge (Watts/cell) at 25 °C (77°F)

F.V/Time	10min	15min	30min	1h	2h	3h	5h	8h	10h
1.85V/cell	95.3	87.6	72.8	54.3	34.6	26.4	19.0	13.4	11.5
1.80V/cell	115.2	104.4	81.8	59.3	37.3	28.2	19.9	14.0	11.9
1.75V/cell	133.9	115.2	87.2	62.8	39.0	29.5	20.6	14.4	12.2
1.70V/cell	147.6	124.1	92.5	66.0	40.2	30.5	21.1	14.6	12.3
1.67V/cell	155.5	129.1	95.8	67.8	41.3	31.4	21.5	14.8	12.5
1.60V/cell	159.6	131.8	98.3	69.5	42.5	32.0	22.0	15.1	12.7



## OPzV Series-Tubular Gel 12V 3OPzV60(12V60Ah)

### Applications

- Telecommunications
- Radio and cellular telephone relay stations
- Emergency lighting systems
- Power stations, Conventional power stations, alternative pwer(solar,wind)
- Large UPS and computer back-up
- Railway signaling
- Maritime standby power on ships and ashore
- Process and control engineering
- Standby power
- Buoy lighting

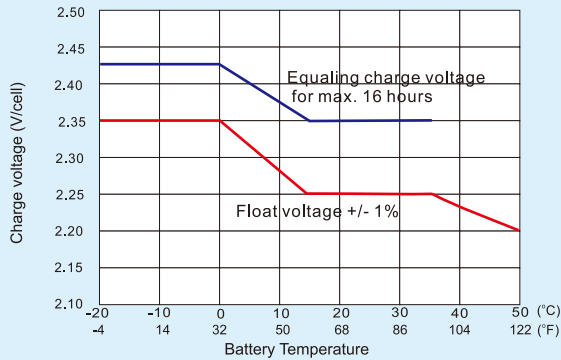
### General Features

- 20 years design life(20°C)
- Better recovery performance
- Wide working temperature range (-20~55)°C
- No electrolyte stratification provides longer service life
- High recombination efficient
- Build in copper core based in lead will carry large current
- Separator imported form AMER-SIL high porosity, PVC-SiO<sub>2</sub> and low resistance
- Pasted negative plate special grid design increase the active material.availability large current discharge and charge ability
- Tubuler type positive plate (polyester tube) prevent the active material from falling. Muti metal alloy pressed positive grid increase the anti corrosion ability and service life

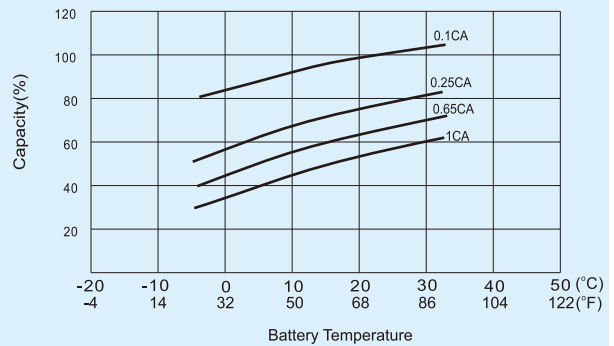
### Standards

- Compliance with IEC 60896, IEC 61427, DIN 40742 standards
- UL, CE Certified
- Manufactured in KOYAMA® IATF16949, OHSAS 18001,ISO 9001 and ISO 14001 certified production facilities

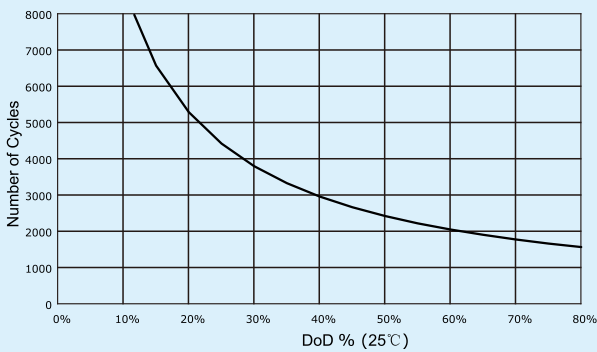
### Charge voltage vs ambient temperature curve



### Temperature effects in relation to battery capacity



### Cycle Life in Relation to DOD



### General Relation of Capacity VS. Storage Time

