



## OPzV Series-Tubular Gel

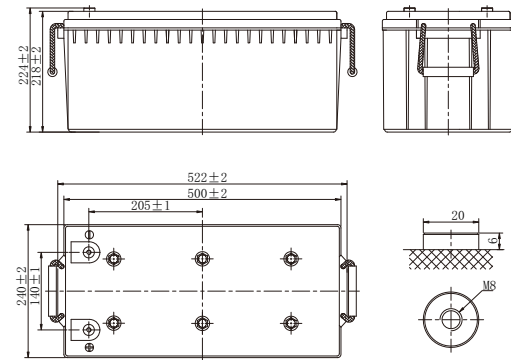
### 12V 9OPzV180(12V180Ah)

#### Specifications

Rated Voltage	12V	
Nominal Capacity	180.0Ah	(C <sub>10</sub> , 1.80V/cell)
Dimension	Length	522mm(20.55in.)
	Width	240mm(9.45in.)
	Container Height	218mm(8.58in.)
	Total Height	224mm(8.81in.)
Approx Weight	67.4Kg (148.59 lbs)	
Terminal	M8	
Container Material	ABS	
Rated Capacity (25°C)	180.0 Ah	(10hr, 18.0A, 1.80V/cell)
	158.0 Ah	(5hr, 31.6A, 1.75V/cell)
	136.2 Ah	(3hr, 45.4A, 1.75V/cell)
	106.7 Ah	(1hr, 106.7A, 1.67V/cell)
Max. Discharge Current (5s)	1440A	
Internal Resistance(25°C)	Approx. 5.2mΩ	
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)	45.0A	
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	173.8	153.2	114.5	83.7	53.1	40.5	29.0	20.3	17.2
1.80V/cell	208.9	177.0	128.5	91.8	57.4	43.4	30.4	21.2	18.0
1.75V/cell	239.6	197.8	138.2	97.7	60.3	45.4	31.6	21.8	18.4
1.70V/cell	261.6	214.7	148.0	103.3	62.5	47.2	32.4	22.1	18.5
1.67V/cell	286.1	230.4	154.8	106.7	64.6	48.8	33.1	22.5	18.9
1.60V/cell	305.4	243.7	160.6	109.7	66.8	49.9	33.8	22.9	19.3

#### 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	285.8	262.8	218.5	162.9	103.7	79.2	57.1	40.3	34.4
1.80V/cell	345.6	313.2	245.3	177.8	111.8	84.6	59.8	42.1	35.8
1.75V/cell	401.8	345.6	261.5	188.3	117.0	88.6	61.9	43.2	36.5
1.70V/cell	442.8	372.2	277.4	198.0	120.6	91.4	63.4	43.9	36.9
1.67V/cell	466.6	387.4	287.3	203.4	124.0	94.3	64.6	44.5	37.4
1.60V/cell	478.8	395.3	295.0	208.4	127.6	95.9	65.9	45.2	38.0



## OPzV Series-Tubular Gel 12V 9OPzV180(12V180Ah)

### Applications

- Telecommunications
- Radio and cellular telephone relay stations
- Emergency lighting systems
- Power stations, Conventional power stations, alternative power (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

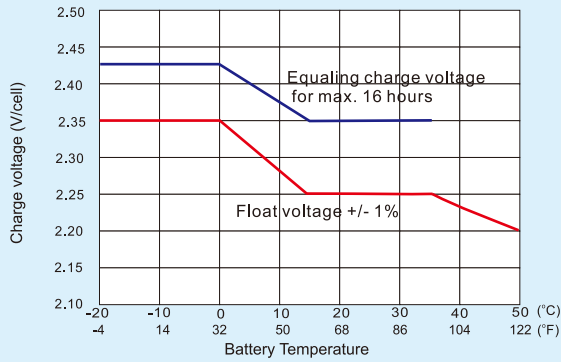
### General Features

- 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
- Built in copper core based in lead will carry large current
- Separator imported from 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
- Tubular type positive plate (polyester tube) prevent the active material from falling, Multi metal alloy pressed positive grid increase the anti corrosion ability and service life

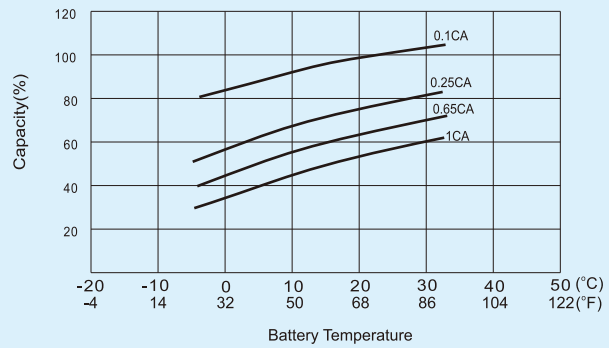
### Standards

- 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

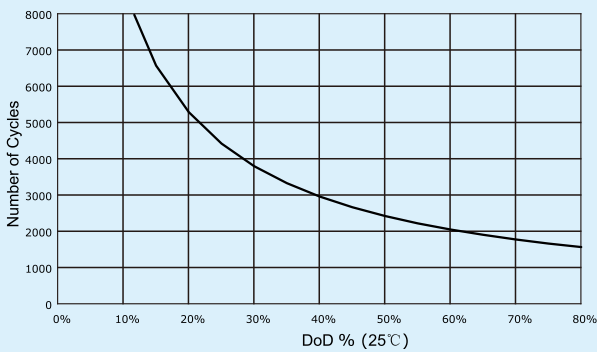
### Charge voltage vs ambient temperature curve



### Temperature effects in relation to battery capacity



### Cycle Life in Relation to DOD



### General Relation of Capacity VS. Storage Time

