PT.SELATAN JADI JAYA

FACTORY :
Jl.Raya Panjunan No.8
Desa Panjunan Kec.Sukodono (61258)
Sidoarjo, Jatim-Indonesia
Telp : 62-31 7872511 - 12 (Hunting)
Fax : 62 -31 7885579

FORCE SERIES
VRLA (12V45 AH)

Product Specification

Nominal Voltage	12V	
Nominal Capacity (20HR)	45 AH	
Dimensions	Length	195±1mm (7.68 inches)
	Width	164±1mm (6.46 inches)
	Container Height	155±1mm (6.10 inches)
	Total Height (with terminal)	170±1mm (6.69 inches)
Approx Weight	Approx 14.5 kg (32.63 lbs)	
Terminal	F12 (M6) Terminal	
Container & Cover Material	ABS Copolymer (UL-94 HB)	
Lead Material	Purity Lead 99.99%	
Sulfuric Acid	Distilled Sulfuric Acid (Zero metal content)	
Separator	AGM	
Rated Capacity	45.0 AH/2.25A	(20hr , 1.90V/cell,25°C/77°F)
	42.0AH/4.2A	(10hr , 1.90V/cell,25°C/77°F)
	39.3AH/7.65A	(5hr , 1.75V/cell,25°C/77°F)
	34.5AH/11.45A	(2hr , 1.75V/cell,25°C/77°F)
	29.3AH/20.25A	(1hr , 1.60V/cell,25°C/77°F)
Max. Discharge Current	675A (5s)	
Internal Resistance	Approx 9.0mΩ	
Operating Temp.Range	Discharge : -15~50°C (5~122°F) Charge : 0~40°C (32~104°F) Storage : -15~40°C (5~104°F)	
Nominal Operating Temp.Range	25±3°C (77±5°F)	
Cycle Use	Initial Charging Current less than 13.5A. Voltage 14.4V~15.0V at 25°C (77°F) Temp.Coefficient -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage 13.5V~13.8V at 25°C (77°F) Temp.Coefficient -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Force-series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

Applications

- All purpose
- Uninterruptable Power Supply (UPS)
- Electric Power System (EPS)
- Emergency backup power supply
- Emergency light
- Railway signal
- Aircraft signal
- Alarm and security system
- Electronic apparatus and equipment
- Communication power supply
- DC power supply
- Auto control system

Dimensions

▲F12(M6) Terminal

Unit : mm (inches)

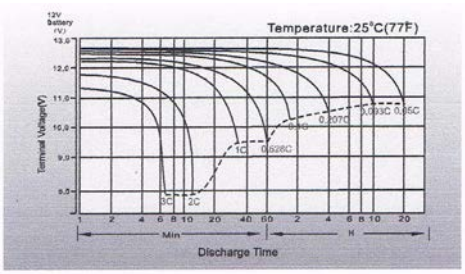
Constant Current Discharge (Ampere) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	138.8	88.0	72.1	60.67	44.93	32.96	25.95	15.62	11.24	8.88	7.51	6.47	4.99	4.11	2.23
1.80V/cell	141.3	94.5	77.6	66.90	48.47	34.19	26.09	15.53	11.32	9.06	7.57	6.52	5.09	4.20	2.25
1.75V/cell	148.2	95.5	78.2	65.64	48.99	34.57	26.89	15.71	11.45	9.16	7.65	6.60	5.17	4.26	2.40
1.70V/cell	160.4	102.8	82.2	68.94	49.86	35.26	27.73	15.91	11.60	9.26	7.75	6.68	5.24	4.32	2.43
1.65V/cell	180.8	114.8	87.0	69.75	49.94	35.67	28.06	16.50	11.76	9.37	7.84	6.76	5.30	4.37	2.46
1.60V/cell	190.8	115.7	87.7	72.26	50.85	35.99	28.25	16.22	11.82	9.46	7.90	6.85	5.36	4.43	2.48

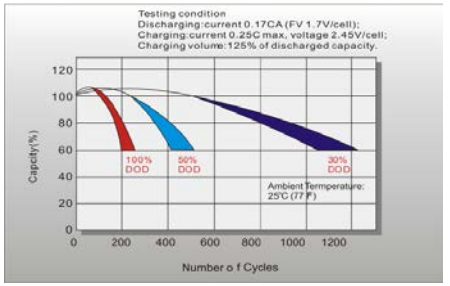
Constant Power Discharge (Watts/cell) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	245.2	168.0	138.8	113.8	85.6	63.4	51.52	30.85	22.85	18.48	15.62	13.56	10.78	8.88	4.55
1.80V/cell	268.5	180.8	147.5	130.9	93.9	67.3	54.78	32.79	24.29	19.28	16.06	14.47	11.00	8.50	4.55
1.75V/cell	274.1	195.8	150.8	124.4	92.8	68.8	55.90	33.67	24.79	19.68	16.40	14.36	11.23	8.81	4.83
1.70V/cell	296.8	213.0	168.5	138.7	96.2	69.7	55.85	31.97	24.17	18.89	15.82	13.68	10.77	8.68	4.66
1.65V/cell	338.2	210.5	165.8	132.5	95.8	69.1	54.83	31.89	22.90	18.23	15.19	13.56	10.93	8.74	4.68
1.60V/cell	352.5	214.1	164.2	133.0	97.1	70.4	55.86	31.28	23.09	18.56	15.47	13.81	11.14	8.82	4.72

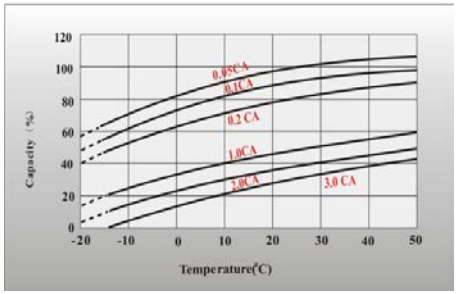
Discharge Characteristics



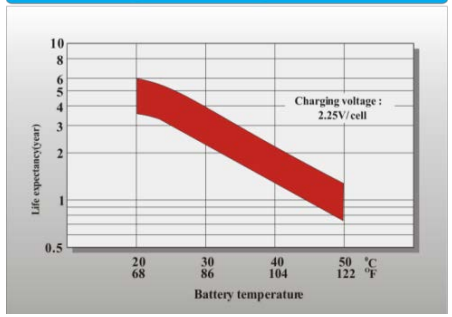
Cycle Life in Relation to Depth of Discharge



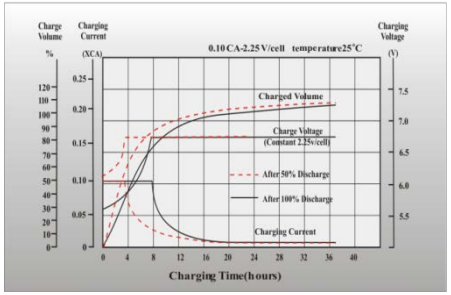
Temperature Effects in Relation to Battery Capacity



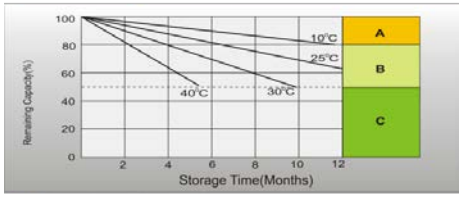
Effect of Temperature on Long Term Float Life



Float Charging Characteristics



Self Discharge Characteristics



A No supplementary charge required (Carry out supplementary charge before use if 100% capacity is required.)

B Supplementary charge required before use.Optional charging way as follows the table of charging system.

C Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this is reached.

State of Charge (SOC)

Open Circuit Voltage (V/cell)	Open Circuit Voltage (12V Battery)	Open Circuit Voltage (6V Battery)	State of Charge (% of full charge capacity)
2.14-2.15	12.84-12.90	6.42-6.46	100
2.12-2.13	12.72-12.78	6.36-6.39	90
2.11	12.66	6.33	80
2.09	12.54	6.27	70
2.07	12.42	6.21	60
2.05	12.30	6.15	50

Charging System

DoD	Current Limit (A)	Constant Voltage (V)	Fully Charged Time (h)
20	$0.15C_{10}$	13.5-13.8 vpc (12V) 6.75-6.9 vpc (6V)	10
	$0.20C_{10}$		8
50	$0.15C_{10}$	13.5-13.8 vpc (12V) 6.75-6.9 vpc (6V)	15
	$0.20C_{10}$		12
80	$0.15C_{10}$	13.5-13.8 vpc (12V) 6.75-6.9 vpc (6V)	16
	$0.20C_{10}$		14
100	$0.15C_{10}$	13.5-13.8 vpc (12V) 6.75-6.9 vpc (6V)	20
	$0.20C_{10}$		18