



**DEEP CYCLE
CARBON BATTERY**

ES-200 CARBON



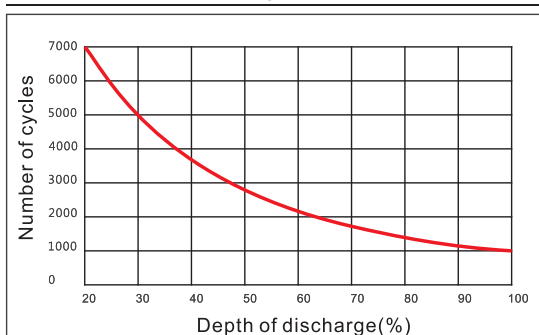
Applications

- > Solar / wind energy and other new energy storage
- > Other backup or cycle purposes
- > Hybrid vehicles, electric bicycles and other new energy vehicles

Special Features :

- > Lead-carbon composite negative plate, both capacitance and battery characteristics
- > Long cycle life, excellent deep cycle discharge ability
- > Excellent charge acceptance ability
- > Optimized capability of instant high-current discharging
- > Strong high and low temperature performance
- > Precision sealing technology

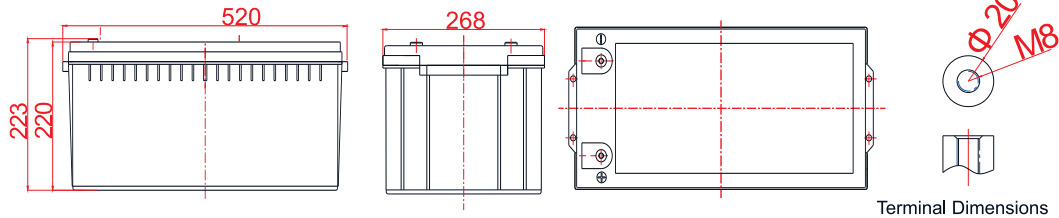
DOD vs Number of cycles



Specification

Nominal Voltage	12V	
Nominal Capacity	200Ah	
Design life	15 years	
Terminal	M8	
Approx. Weight	Approx 64.0kg (141 lbs)	
Dimensions	Length	520mm (52cm)
	Width	268mm (26.8cm)
	Height	220mm (22cm)
	Total Height	223mm (22.3cm)
Container Material	ABS	
Rated Capacity	200Ah	10Hour Rate (22.0A to 10.8V)
	180Ah	3Hour Rate (60.0A to 10.2V)
	121Ah	1Hour Rate (165A to 10.5V)
Internal resistance	Full charged at 25°C: 4.20 mΩ	
Pulse Current	2200A(5S)	
Operating Temperature	Discharge : -20~60°C(-4~140°F)	
	Charge : -20~50°C(-4~122°F)	
	Storage : -20~50°C(-4~122°F)	
Cycle Life	2800 cycles @ 50% DOD.	
Charge current :	Max. 55A; Recom. 40A	
Charge Method (25 °C)	Float Charge:13.5-13.8V, recom.13.5V(-18mV/°C)	
	Equalize charge:13.8-14.1V, recom.14.1V(-24mV/°C)	
	Cycle charge:14.4-15.0V, recom.14.7V(-30mV/°C)	

Dimension: 520(L)x268(W)x220(H)x223(TH) Unit: mm



Constant Current Discharge Characteristics Unit: A/Cell (25°C, 77°F)

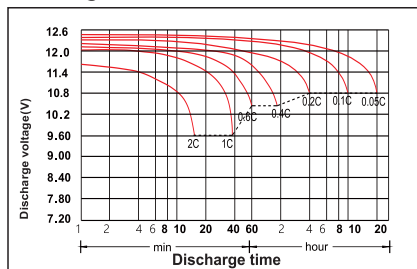
FV/Time	30min	1h	2h	3h	5h	8h	10h	20h
1.60V/Cell	210.0	121.0	95.0	60.0	44.3	26.1	22.4	11.8
1.65V/Cell	203.0	119.0	93.0	58.0	43.8	25.8	22.2	11.7
1.70V/Cell	195.0	117.0	92.0	57.0	43.1	25.4	22.1	11.6
1.75V/Cell	190.0	116.0	90.0	57.0	42.4	25.0	22.0	11.6
1.80V/Cell	183.0	114.0	88.0	55.0	41.8	24.5	22.0	11.4
1.85V/Cell	179.0	112.0	87.0	53.0	41.0	24.1	21.9	11.3

Constant Power Discharge Characteristics Unit: W/Cell (25°C, 77°F)

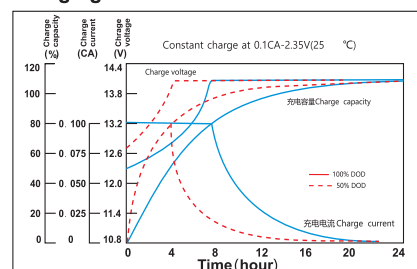
FV/Time	30min	1h	2h	3h	5h	8h	10h	20h
1.60V/Cell	417.0	255.0	146.0	107.0	71.3	48.0	40.0	21.6
1.65V/Cell	403.0	250.0	140.0	105.0	70.0	47.6	39.6	21.5
1.70V/Cell	390.0	241.0	135.0	105.0	69.4	47.4	39.2	21.5
1.75V/Cell	376.0	235.0	129.0	104.0	69.0	47.0	38.8	21.3
1.80V/Cell	361.0	230.0	123.0	103.0	68.5	46.6	38.4	21.1
1.85V/Cell	345.0	220.0	118.0	100.0	66.1	45.1	37.8	21.0

Product specification are subject to change without prior notice.

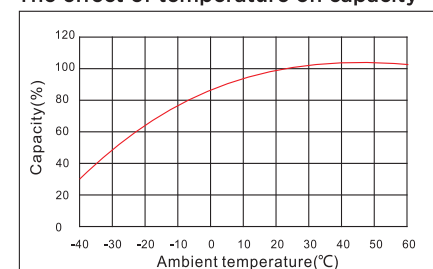
Discharge characteristic



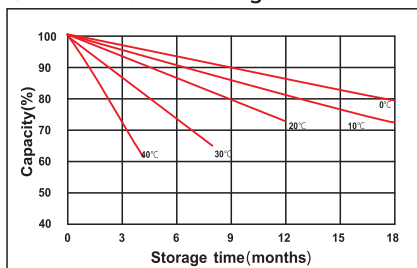
Charging characteristic



The effect of temperature on capacity



Curves of self - discharge



The effect of discharge depth on cycle life

