

# FULL FORCE

## BATTERY

# FFD200-12LT

### CYCLING CAPACITY

20 Hour Rate **200 Amp Hours**

### RESERVE CAPACITY

Reserve @25 AMPS **380 Minutes** Reserve @75 AMPS **100 Minutes**

### ELECTRICAL SPECIFICATIONS

Nominal Voltage	<b>12 Volt</b>
C100	<b>220 AH</b>
C20	<b>200 AH</b>
C10	<b>188 AH</b>
C5	<b>164 AH</b>
CCA	<b>1100 Amps</b>
CA or MCA	<b>1330 Amps</b>
Internal Resistance	<b>3.2 mΩ</b>

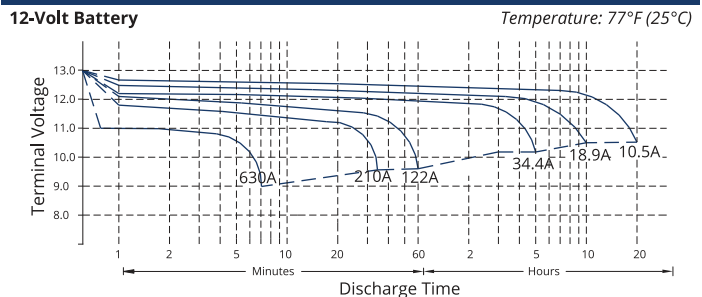
### MECHANICAL SPECIFICATIONS

Group Size	<b>4D</b>	
Terminal Type	<b>LT</b>	
Terminal Torque	<b>5.8 - 6.7 ft/lbs 62 - 80 lbs/in 7 - 9 Nm</b>	
Height (w/ terminal)	<b>9.13"</b>	<b>239 mm</b>
Height (case only)	<b>8.43"</b>	<b>214 mm</b>
Width	<b>8.11"</b>	<b>206 mm</b>
Length	<b>20.94"</b>	<b>532 mm</b>
Weight	<b>125.7 lbs</b>	<b>57.0 kg</b>
Case Type	<b>ABS Plastic</b> Flame Res. Rating UL94-HB	

### DISCHARGE TABLE (Constant Current)

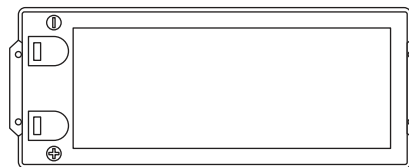
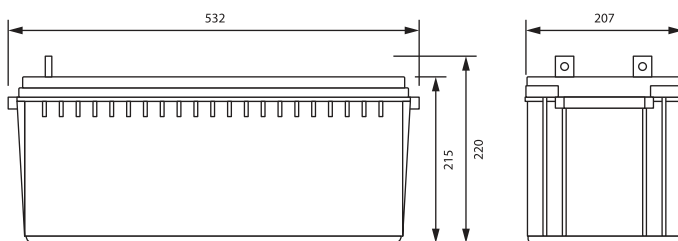
Time	Amps	Rate
20hr	10.0	0.05 CA
10hr	18.8	0.10 CA
8hr	21.8	0.13 CA
5hr	32.0	0.20 CA
3hr	45.3	0.33 CA
2hr	61.2	0.50 CA
1hr	113.0	1.00 CA

### DISCHARGE PROFILE (Constant Current)

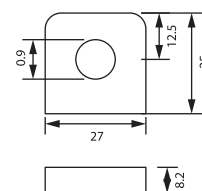


- All listed ratings are @ 100% SoC, T=77°F (25°C), 1.75VPC unless otherwise specified.
- Specifications listed are for estimation purposes only. Battery performance can vary depending on application. Battery design subject to change.

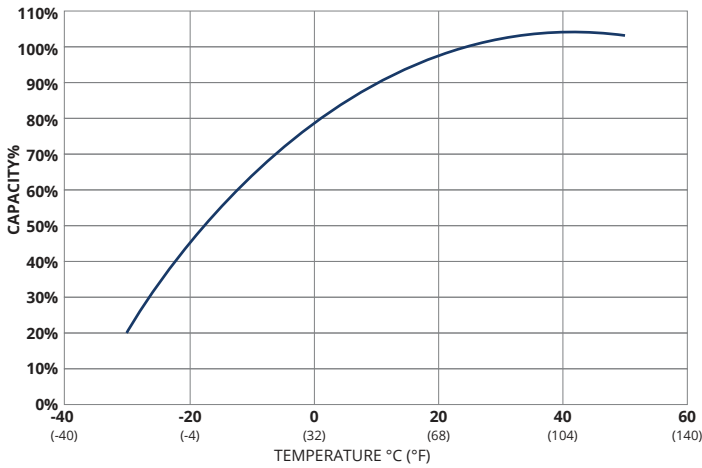
### BATTERY & TERMINAL DIMENSIONS (All units shown in mm)



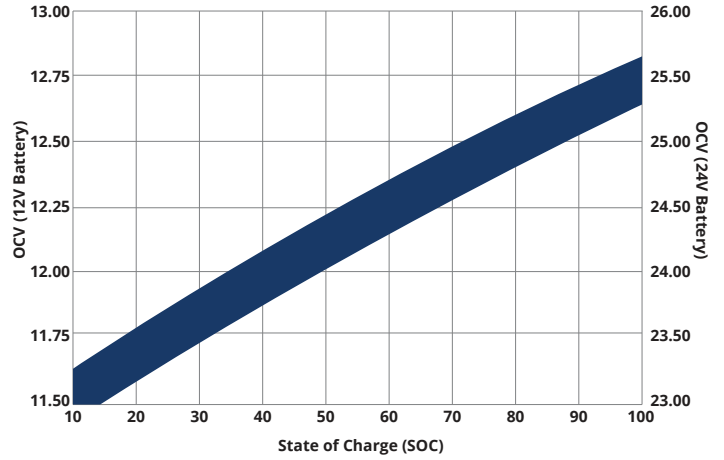
#### Terminal: LT



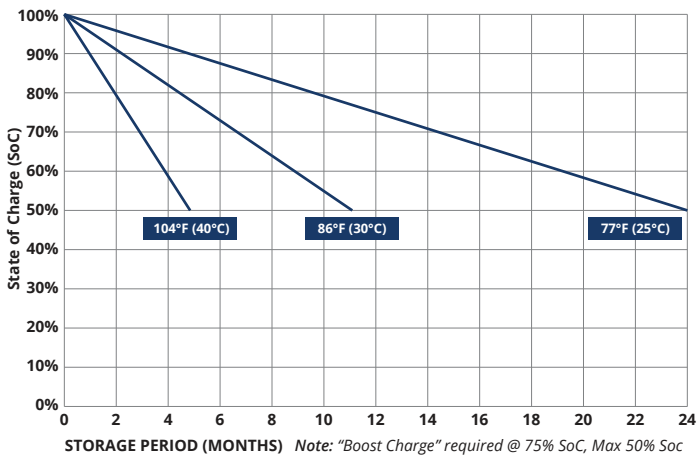
## TEMPERATURE vs CAPACITY



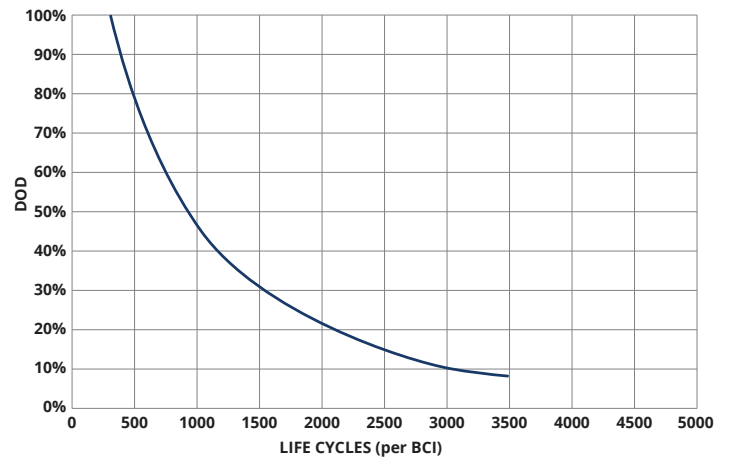
## STATE of CHARGE (SOC) vs OPEN CIRCUIT VOLTAGE (OCV)



## SELF DISCHARGE vs TIME/TEMPERATURE



## CYCLE LIFE vs DEPTH of DISCHARGE (DOD)



## TEMPERATURE RANGE SPECIFICATIONS

Condition	Recommended	Maximum	Recommended	Maximum
Storage	5°F to 122°F	-40°F to 160°F	-15°C to 50°C	-40°C to 71°C
Operation	5°F to 104°F	-40°F to 160°F	-15°C to 40°C	-40°C to 71°C
Charge with TC	5°F to 122°F	-40°F to 160°F	-15°C to 50°C	-40°C to 71°C
Charge w/o TC	32°F to 104°F	5°F to 122°F	0°C to 40°C	-15°C to 50°C

\*TC= Temperature Compensation

## CHARGE VOLTAGES

Charge Stage	Battery Voltages			
	12V	24V	36V	48V
Bulk	14.40V	28.80V	43.00V	58.00V
Absorption	14.00V	28.00V	42.00V	56.00V
Float	13.50V	27.00V	40.50V	54.00V

TC Factor: (-2mV°F/cell) or (-4mV°C/cell)

## TERMINAL TORQUE SPECS

M5TAS	M6	M8	M10	M6M (Stud)	M8M (Stud)	M10M (Stud) & 3/8" Stud	FR45	TP06 (AP)	TP08/TP68 (AP)	AP
1.67-2.5ft-lbs	3.3-4.8ft-lbs	5.2-6.7ft-lbs	8.1-10.3ft-lbs	2.6-3.7ft-lbs	4.4-5.9ft-lbs	7.4-8.8ft-lbs	4.8-6.3ft-lbs	2.6-3.3ft-lbs	4.6-6.3ft-lbs	4.2-5.8ft-lbs
20-30lbs-in	40-57.5lbs-in	62-80lbs-in	97-124lbs-in	31-44lbs-in	53-71lbs-in	88.5-106lbs-in	57-75lbs-in	31-40lbs-in	55-75lbs-in	50-70lbs-in
2.26-3.39Nm	4.5-6.5Nm	7-9Nm	11-14Nm	3.5-5Nm	6-8Nm	10-12Nm	6.5-8.5Nm	3.5-4.5Nm	6.2-8.5Nm	5.6-7.9Nm



9001:2008 Quality Management System  
 14001:2004 Environmental Management System  
 18001:2007 Occupational Health & Safety Management System

DELIVERY APPROVED!  
**LAND, SEA  
 & AIR**

Fullriver batteries are sealed lead acid batteries made with Absorbed Glass Mat (AGM) technology. The electrolyte is absorbed into the fiberglass separator material rather than in a free-flowing liquid form. Fullriver batteries are non-spillable electric storage batteries. They are exempted from the requirements of DOT's hazardous materials regulations, since they adhere to the requirements of code 49 CFR Section 173.159(D) - (CLASSIFIED APPROVED: DOT, CFR, HMR49, IATA, ICAO67, IMDG27)