



Extra  
Performance



Extra  
Power



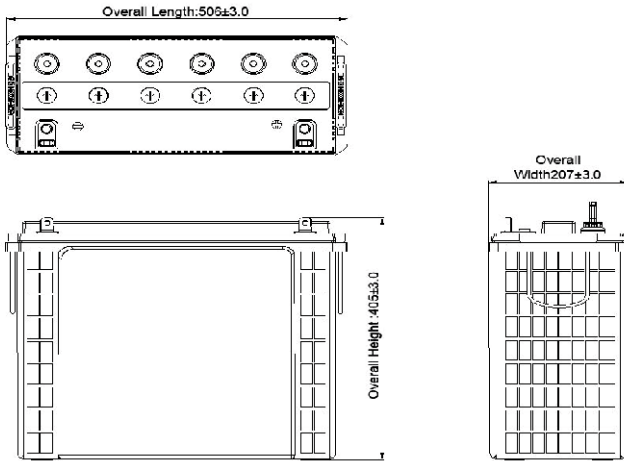
Extra  
Backup

# TALL TUBULAR CONVENTIONAL BATTERY 22000<sub>220AH</sub>



**DURO**  
SERIES

## TECHNICAL SPECIFICATION - Tall Tubular Conventional Battery



### Product Features:-

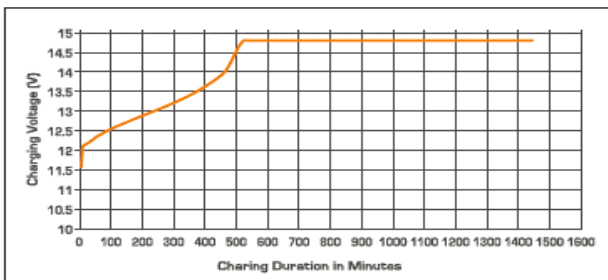
1. Delivers best quality of power equivalent to the grid power.
2. PDC plates: Worry free superior performance with least battery maintenance
3. Tower type TT container, ensuring more than 20% extra electrolyte, ensuring lesser topping up frequency & better thermal management
4. More active surface area for better utilization of material, result in more backup.
5. Excellent behavior in PSOC condition as compare.
6. Ability to withstand long and frequent power outages.
7. Excellent performance on deep cyclic application.
8. Provided with 6 nos. free float indicators for ease of battery maintenance

### Technical Specifications

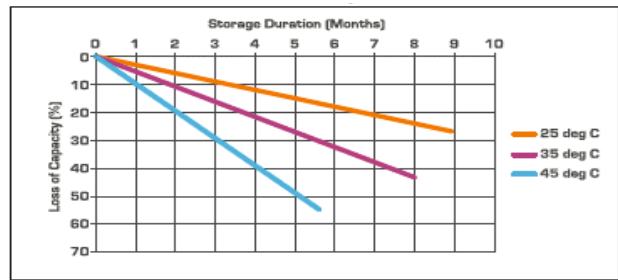
Model	22000	
Nominal Voltage	12	
Dimensions in mm	Length (±3mm)	506
	Width (±3mm)	207
	Height (±3mm)	405
Minimum Grossed Battery Weight ±3%	63*	
Terminal Type	L	

- Poly Components Material :- Polypropylene Co Polymer
- Watering System :- Individual to every cell in Monobloc
- Color :- Yellow
- Testing Parameters :- IS 13369:1992 & IS16270:2014

### Charing Profile



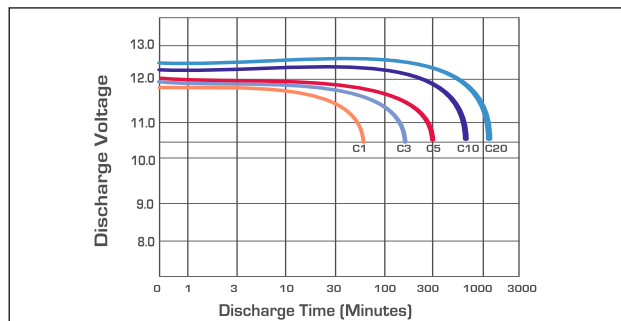
### Self Discharge Characteristics@ Different Temperature



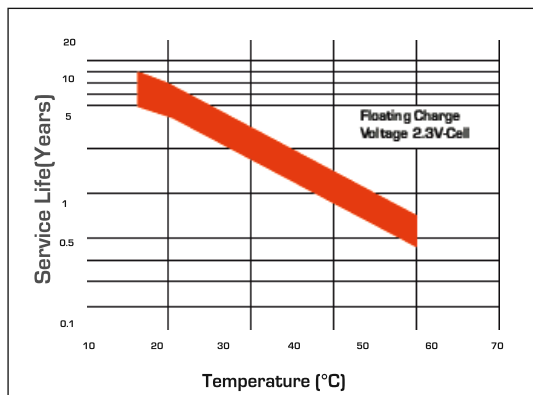
### State of Charge Measure of Open-Circuit Voltage @27 C

State of Charge	Specific Gravity	Voltage
100%	1.245-1.275	12.55V-12.70V
75%	≤ 1.225	≤ 12.4V
50%	≤ 1.190	≤ 12.1V
25%	≤ 1.155	≤ 12.0V
0%	1.120	11.8V

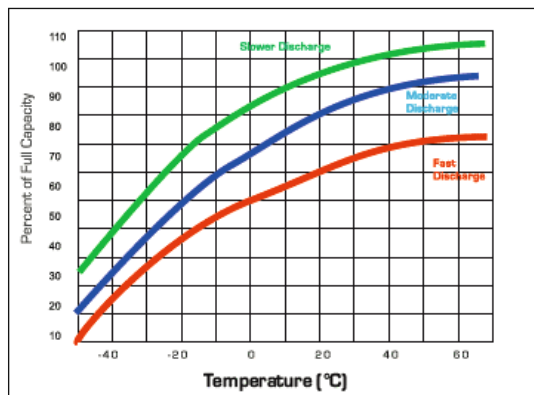
### Discharging Characteristics at Various Rates@ 27 C



### Service (Float) Life and Temperature



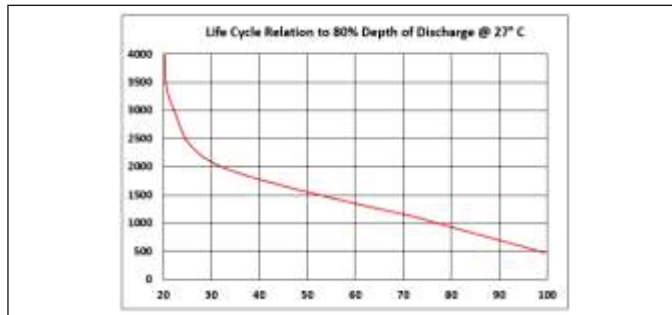
### Expected Capacity vs Temperature



### Specific Gravity & Self Discharge w.r.t Temperature

	Add	Subtract
CHARGING TEMPERATURE COMPENSATION	0.005 volt per cell for every 1°C below 25°C 0.0028 volt per cell for every 1°F below 77°F	0.005 volt per cell for every 1°C above 25°C or 0.0028 volt per cell for every 1°F above 77°F
OPERATIONAL DATA	Operating Temperature	Self Discharge
	4°F to 131°F (-20°C to +54°F) At temperatures below 30°F (0°C) maintain a state of charge greater than 60%	As per discharge Graph

### Expected Life



### Charging Instructions

Charger Voltage Settings (at 77°F/25°C)			
System Voltage	12V	24V	48V
Maximum Charge Current	0.2C10		
Minimum Charge Current	20Amp.		
Maximum Absorption Phase Time (Hours)	4		
Absorption Voltage	14.6	29.2	58.4
Float Voltage	13.8	27.6	55.2
Equalization Voltage	16	32	64
NOTE: 1) Do not install or charge batteries in sealer or non-ventilated compartment, Constant under or overcharge will damage the battery and shorten its life as any battery. 2) Maximum two strings are allowed in parallel connections			
Periodic Charge	Provide a periodic fresh charge to maintain a SOC greater than the threshold of 80%		

### Comparison in Between Eastman TTC & AGM VRLA

S. No	Parameter	Eastman Tall Tubular Conventional	AGM VRLA
1	Plate technology	Tall Tubular Plate	Flat Pasted Plate
2	Life W.R.T. Application	Excellent performance on cyclic application	Not good for deep cycle application
3	Application	Power Backup solution-solar/Inverter/UPS suitable for float application above 1 Hours discharge rate	Power Backup Inverter/UPS suitable for float application and Stand by application
4	Electrolyte	Free Flow Electrolyte	Electrolyte in Between AGM
5	Water Loss	Low	Negligible
6	Water Top up	Low Water Top	No water Top up required
7	Life Extension	Long life with regular water top up	Not Applicable
8	Self Discharge	Low < 3.0%	Very Low < 2.0%
9	Life Cycle w.r.t. 80% DOD@27°C	950 cycles	580 Cycles
10	Recovery in PSOC	Excellent	Low
11	Charger Setting	Generic set point for charger	Required special set point for chargers
12	Operating Temperature Range	- 20 Degrees to + 55 Degree	- 15 Degrees to + 40 Degree
13	Terminal type	L- Type Terminal	Stud Type Terminal