



The **Wise** Choice

-  Completely Maintenance Free
-  Negligible Fumes, No Health Hazards
-  Full Rated Backup till 85% of life
-  Low Cost of Ownership
-  Safe Operation
-  Hassle Free Transportation

TALL TUBULAR GEL BATTERY (200Ah)

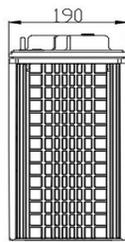
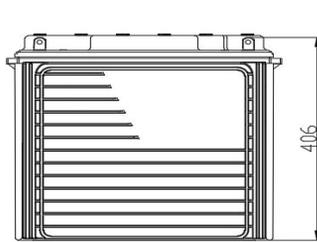
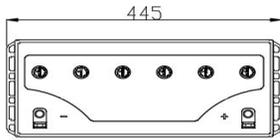


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TECHNICAL SPECIFICATION - Tubular Gel Battery



Product Features :-

1. Robust Tubular with High pressure diecasted spine - rate of spine corrosion is very low as compare to AGM VRLA
2. Gelled electrolyte - no stratification and no failure due to PSOC
3. Valve regulated - no water top up during service life
4. Antimony free alloy - Low Self Discharge
5. Very High Design & service life as compare to than AGM VRLA
6. Good for Cyclic & Float Applications
7. Wide operating Temperature Range.

Technical Specifications

Model	Nominal Voltage	Rated Capacity 10 Hr @ 27°C (Ah)	Dimensions in mm			Gross Weight [Kg] [±3%]	Terminal Type
			Length (± 3 mm)	Width (± 3 mm)	Height (± 3 mm)		
EM200PT [12 V 200 AH @ C20]	12	180	445	190	406	65.10	L

Electrical Parameters & Charging Profile

Battery Specified Capacity Test @ 27 °C

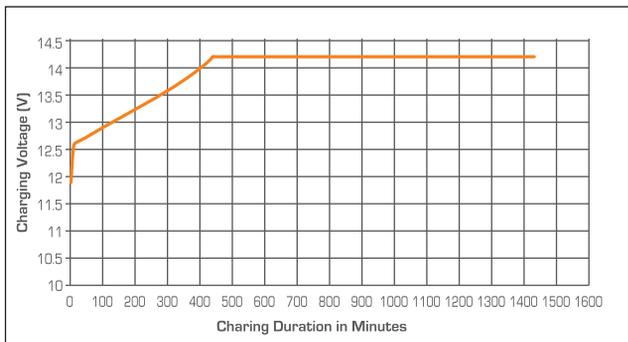
	C20 @10.5V	C10 @10.5V	C7 @10.5V	C5 @10.5V	C3 @10.5V	C1 @10.5V
EM200PT [12 V 200 AH @ C20]	200	180	166	150	129	90

Ah & Wh Efficiency

Ah Efficiency	>96%	Wh Efficiency	>84%
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- Poly Components Material :- Polypropylene Co polymer
- Color :- Blue
- Testing Parameters :- IS 13369:1992, IEC 60896-21 & IEC 61427-1

Charging Profile



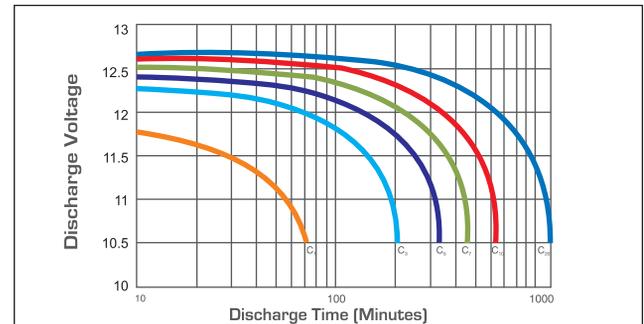
Self Discharge Characteristics @ Different Temperature



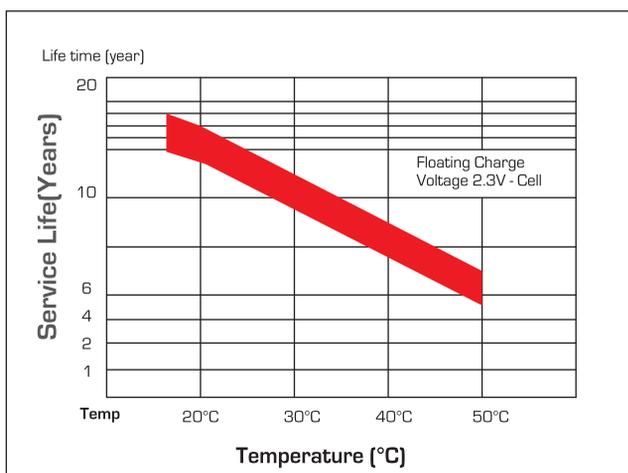
State of Charge Measure of Open-circuit Voltage @ 27°C

State of Charge	Specific Gravity	Voltage
100%	NA	12.90-13.10V
75%	NA	≤ 12.75V
50%	NA	≤ 12.45V
25%	NA	≤ 12.1V
0%	NA	11.9V

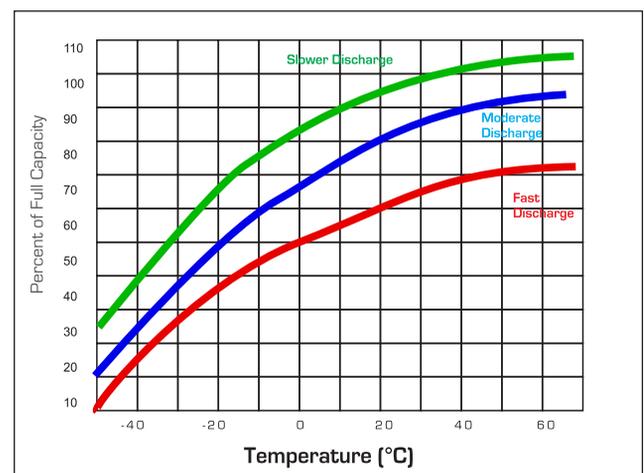
Discharging Characteristics at various rates @ 27°C



Service (Float) Life and Temperature



Expected Capacity vs Temperature



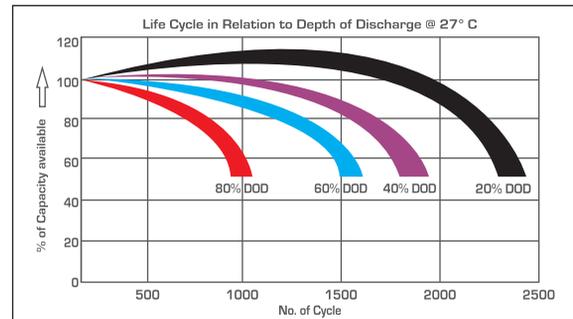
Eastman Battery Manufacturing Certified by TUV India



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 +55°C] At temperatures below 32°F [0°C] maintain a state of charge greater than 60%.	As per discharge Graph

Expected Life



Instruction during installation of Tubular Gel

- Please check the inverters settings before installation. It should be as mentioned in Table -1
- Max. 48 V series string allowed.
- No parallel string allowed.
- Always keep the ideal settings on inverters.
- Use always sine wave inverter with flexible charging settings not fixed setting modes.
- Wire gauge should be as per current standard gauge requirements.
- No loose connections allowed.
- The distance between inverter & battery should be 1 meter maximum, long wire length may drop the backup & charging efficiency.
- Don't open the vent plugs (during maintenance and equalization process).

RECOMMENDED BATTERY IDEAL SETTINGS BY EASTMAN (48 V System)

Battery Type Gel	Absorption Stage 14.4V (57.6 V)	Float Stage 13.8V (55.2V)	Torqur Values (Every 30 days 3 Hrs) 15 V (60V)
*Absorption Voltage :- 14.4V individual battery x N (No. of battery) *Float Voltage :- 13.8V individual battery x N (No. of battery) Torque (Equalization Voltage) :- 15V individual battery x N (No. of battery)			

RECOMMENDED BATTERY HIGHEST SETTINGS BY EASTMAN (48 V System)

Battery Type Gel	Absorption Stage 14.6V (58.4 V)	Float Stage 14.0V (56.0V)	Torqur Values (Every 30 days 3 Hrs) 15.2 V (60.8V)
*Absorption Voltage :- 14.6V individual battery x N (No. of battery) *Float Voltage :- 14.0V individual battery x N (No. of battery) Torque (Equalization Voltage) :- 15.2V individual battery x N (No. of battery)			

Eastman Gel battery testing procedure adhere IEC & UL 94 test standards

Comparison in between Eastman Tubular Gel & AGM Gel VRLA

S.No	Parameter	Eastman Tubular Gel	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 Hour discharge rate"	"Power Back up - Inverter/UPS Good for float & stand by application"
4	Electrolyte	Electrolyte in- Between Gel	Electrolyte in- between AGM
5	Water Loss	Negligible	Negligible
6	Water Top up	No water top up throughout Warranty Life	No water top up throughout Warranty Life
7	Life Extension	Not Applicable	Not Applicable
8	Self Discharge	Very Low < 2.0%	Very Low < 2.0%
9	Life Cycle w.r.t DOD @27° C @ 80% DoD	1500 Cycle	450 Cycle
10	Spillage	Spill-proof	Spill-proof
11	Fumes	No	No
12	Recovery in PSOC	Excellent	Low
13	Charger Settings	Generic set point for chargers	Required special set point for chargers
14	Operating Temperature Range	-20 Degrees to +55 Degrees	-15 Degrees to +40 Degrees
15	Terminal Type	L-Type Terminal	Stud Type Terminal

Terminal Configuration :-
Terminal Type :- L
Terminal Height :- 25 mm
Torque Value :- 8-10 N.m
Bolt Type :- M8



Vent Plug Type :-
M18 with vent valve & flame arrestor assembly

