



सत्यमेव जयते

भारत सरकार  
Government of India

राष्ट्रीय परीक्षण शाला (पूर्वी क्षेत्र)  
National Test House (Eastern Region)

11/1 जज्जेस कोर्ट रोड, अलीपुर, कोलकाता - 700 027  
11/1, Judges' Court Road, Alipore, Kolkata - 700 027

FORM NO : NTH/ALP/F/5



TEST CERTIFICATE

Test certificate no  
NTH(ER)/EL(B)/2018/003

Date of Issue  
04/05/2018

Code No  
1517388687294

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"BAT-13369"

**Marking:** (i) Printed on both wider sides of a Battery :

OKAYA  
Chalti Rahe Yeh Zindagi  
SOLAR  
TUBULAR BATTERY  
Zindagi Ka Roop  
Badhaye Shaandar Dhoop  
ST150S  
Capacity 150Ah @ C<sub>10</sub> , Sp. Gr.:1.240±0.005 (27°C)

(ii) Paper sticker pasted on top of the Battery :

Capacity : 150 Ah @ 10h rate  
Battery Model : ST150S  
Country of Origin: India  
Mfg. Address – Fujikawa Power,Baddi (H.P.)

(iii) On the top of a Battery :

Positive polarity embossed with '+' symbol & marked with red colour.  
Negative polarity embossed with '-' symbol & marked with blue colour.

(iv) Embossed on the top of a Battery :

FSUN098503514397

The marking of the other Batteries are same & identical except Nos. FSUN098503514406, FSUN098503514407, FSUN098503514396 & FSUN098503514404. Five nos. 12V,150Ah Batteries were marked randomly as FX1,FX2,FX3,FX4 & FX5 by this laboratory for identification purpose.

Tested By

Sayantan Das  
SO (Electrical)

Checked By

Pradip Kumar Bera  
Scientist - B (Electrical)

Approved By

Biswa Ranjan Mandal  
Scientist - B (Electrical)



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Sl. No.	Test Name	Requirements	Test Result					Remarks
			Battery marked					
			FX1	FX2	FX3	FX4	FX5	
3	First charge: (Carried out as per Cl.10.3 of the specification & customer requirements)	Samples shall be filled with electrolyte and shall be given first charging as per manufacturer's instruction. After full charge specific gravity of electrolyte shall be 1.240±0.005 corrected to 27°C.	The samples were received in electrolyte filled condition. Samples were given freshening charge as per manufacturer's instruction. After full charge specific gravity of electrolyte was found 1.240±0.005 corrected to 27°C.					
4	Test for Capacity : (Carried out as per Cl.11.5 of the specification)							Satisfactory
	1 <sup>st</sup> Capacity in ampere-hours (Ah) at C <sub>10</sub> rate corrected to 27°C	On the First discharge the cell Shall give not less than 85% of the rated capacity.i.e.Min.127.5Ah and shall not be more than 130% of the rated capacity i.e Max.195Ah & the rated capacity shall be reached within 10 discharges	Battery marked					
			FX1	FX2	FX3	FX4		
			158.725	159.820	164.186	159.597		

Tested By  
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Sayantan Das  
SO (Electrical)

Checked By  
*Pradip*  
Pradip Kumar Bera  
Scientist - B (Electrical)

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*Biswa*  
Biswa Ranjan Mandal  
Scientist - B (Electrical)



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Sl. No.	Test Name	Requirements	Test Result	Remarks
5	<b>Ampere-hour &amp; Watt-hour efficiency Test :</b> (Carried out as per CL.11.8 of the specification)			Satisfactory
			<b>Battery marked</b>	
	(i) Ampere-Hour efficiency:(in %)	Shall not be less than 90%	<b>FX1</b> 93.17	
	(ii) Watt-Hour efficiency : (in %)	Shall not be less than 75%	82.21	
6	<b>Test for loss of capacity on storage :</b> (Carried out as per Cl.11.6 of the specification)			Satisfactory
			<b>Battery marked</b>	
			<b>FX2</b> <b>FX3</b>	
	Loss of capacity (in %) :	Shall not exceed 10%	9.02      2.42	

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Tests :

[Carried out as per IS:13369-1992 (Amndt. no.1 to 3) & customer requirements]

Sl. No.	Test Name	Requirements	Test Result					Remarks
			Battery marked					
			FX1	FX2	FX3	FX4	FX5	
1.	<b>Verification of constructional requirements :</b> (Carried out as per Cl.11.2 of the specification)							Satisfactory.
	(i) Electrolyte level Indicator :	Each cell shall be provided level indicator						Level Indicators provided in each case.
	(ii) Terminal Posts:	Positive and negative terminal posts shall be clearly and unmistakably identifiable						Positive and negative terminal posts were clearly embossed in each case
	(iii) Connections:	Shall be made of lead plated aluminium/copper strips or of flexible cables						Lead plated in each case
	(iv) Terminal Connectors :	Shall be effectively lead coated						Lead coated in each case
2.	<b>Loss of Water Test :</b> (Carried out as per Cl.11.9 of the specification & customer requirements)							Satisfactory.
	Loss of Water (in g/Ah/Battery) :	18 (Maximum)						<b>Battery marked</b>
								FX4
								11.4

Tested By

*Son*  
Sayantan Das  
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Checked By

*Ram*  
Pradip Kumar Bera  
Scientist - B (Electrical)

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Biswa Ranjan Mandal  
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Sl. No.	Test Name	Requirements	Test Result	Remarks
3.	<b>Test for Equilibrium Float Current :</b> (Carried out as per Cl.11.10 of the specification & customer requirements)			Satisfactory.
	Equilibrium Float Current (in mA/Ah/Battery) :	10. (Maximum)	<b>Battery marked</b> FX4 1.93	
4.	<b>Endurance Test :</b> (Carried out as per Cl.11.7 of the specification & customer requirements)			Satisfactory.
	Final Discharge duration in hrs. at C <sub>10</sub> rate at the end of the Endurance cycles period of 2000 Hrs.	The battery shall give not less than 9 Hrs.of discharge at the final test discharge of the last period of charge	<b>Battery marked</b> FX5 10.92	

Tested By

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*Pradip Kumar Bera*

Pradip Kumar Bera  
Scientist - B (Electrical)

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*Biswa Ranjan Mandal*

Biswa Ranjan Mandal  
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