

NISE

National Institute of Solar Energy

(An Autonomous Institution of MNRE, GOI)
19 K.m Stone, Gurgaon-Faridabad Road, Gwal Phari, Gurgaon (Haryana)-122003

File No: 229/2016-17 /CSC/NISE 11326

Dated: 23/12/16

To, M/s. Kalinga Renewable Energy Manufacturers Pvt
503-c Panchamukhi, A Tala, Baliana,
Bhubaneswar -752101, odisha.

Subject: Issue of Test Report by National Institute of Solar Energy ('NISE')

Dear Sir,

Please refer to your letter No./Order Form No. 05 Dated 14/10/16 In this connection, I am directed to enclose herewith the Test Report No : 136/2016/WP/NISE Dated 23/12/16. In respect of your submitted samples in original, for ready reference and record.

2. Discrepancies, if any observed, in respect of any of the entries contained in the above report should be brought to the notice of this office within 60 days from the date of issue of this letter, falling which it will be presumed that the entries therein are in order and no further correspondence will be entertained thereafter on this particular report.
3. We would like to solicit your views and therefore enclosing a Feedback Form with a request to be filled up by you and then send as soon as possible. Your suggestions are valuable for us to make our further improvements and take corrective action in improving our quality of service.
4. Further, You are also requested to collect your samples at your cost within 60 days, from the date of issue of this letter falling which NISE will dispose of the sample in best possible manner and NISE will not be responsible in any manner for this sample.

Kindly acknowledge the receipt of this letter along with original test report and original Invoice.



Yours faithfully

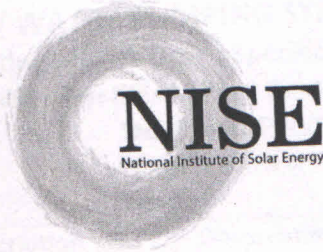
[Signature]
23/12/2016
(In-charge, Customer Service Cell)
(National Institute of Solar Energy)

Encl:

1. Test Report-Total Page 04
2. Feedback Form

Copy forwarded for Information to:

1. PA to Director General-NISE
2. Guard File
3. Office Copy



National Institute of Solar Energy

(Formerly known as Solar Energy Centre)

(An autonomous Institute of Ministry of New & Renewable Energy)

Gurgaon-Faridabad Road, Gwalpahari, Gurgon-122003

✉ csc.nise.mnre@gmail.com ☎ 0124-2579052; FAX: 0124-2853056

2016-2017 TEST REPORT ON PV WATER PUMPING SYSTEM (Testing Model: User's Specifications)

Sample Number: 136/2016/WP
 Manufactured by: M/s Kirloskar Brothers Limited
 Pump System: M/s Dosan Solar
 PV Array : M/s Kirloskar Brothers Limited
 Controller: M/s Kalinga Renewable Energy Manufacturers Pvt. Ltd.
 Submitted by: M/s Kalinga Renewable Energy Manufacturers Pvt. Ltd.
 503-C, Panchmukhi, Atala, Balianata,
 Bhubaneshwar, Odisha-752101, India

NOTE

This is a report on measurements carried out on SPV WATER PUMPING SYSTEM (sample number 136/2016/WP/NISE) submitted to National Institute of Solar Energy as per User's specifications. The data reported in this TEST REPORT are valid at the time of and under the stipulated conditions of measurement and the test results are applicable to those items of product which have been tested and do not apply to other products even though declared to be identical. The data contents in this report do not constitute a qualification certificate under any set of specifications. NISE does not accept any liability for any consequences including commercial or otherwise arising out of the utilization of the information contained in this report.

The Test Report, if reproduced for any purpose, commercial or otherwise, should be reproduced in full. The contents of the report can be published only after a written approval from the Director General, NISE. This report consists of 4 pages & annexure (of 5 pages).

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Renu

W. S. Singh

Rajesh Kumar
23/12/2016

Shweta
23/12/2016

National Institute of Solar Energy

PV WATER PUMPING SYSTEM

(Testing Model: User's Specifications)

SPV Water Pump System Submitted By: M/s Kalinga Renewable Energy Manufacturers Pvt.
Ltd. 503-C, Panchmukhi, Atala, Balianata,
Bhubaneswar, Odisha-752101, India

S.No.	Test Description	Observations	Remarks
1	PV Module/ Array		
1.1	Array Capacity at STC	486.7 Wp	Detail on Page No. 4
1.2	Certification of PV Modules	Modules qualification test certificate as per IEC 61215 & IEC 61730 Part I & Part-II, qualified	Validity up to 25.08.2020
1.3	Type of modules	Multi Crystalline Silicon modules. Manufactured by M/s Dosan Solar	
1.4	Peak power output of SPV module under STC.	Nominal module wattage 100 Wp.	Mismatch in modules wattage= 0.81 %
1.5	Module Efficiency	14.44 %	
1.6	Fill Factor	77.98 %	
2.	Motor & Pump Details		
2.1	Make, model & Serial No.	M/s Kirloskar Brothers Limited, Model: KU4-0208, Pump Sr. no.16060001, Motor Model: Sol 050, Motor Sr. No. : 16060002, Controller: M/s Kirloskar Brothers Limited, Model: Jalverter J2.1, Sr. No. E1712K000.144, 0.5 HP	
2.2	Type of pump	Deep well pump	
2.3	Operation	AC	
3.	Electronics and Protections		
3.1	IP 54 Protection	Provided	Tested By ERDA (Report No: RP-1617-002686)
3.2	Remote Monitoring Facility	Not Provided	It must be provided

Tested by:

Agenda

Prepared by:

Renu

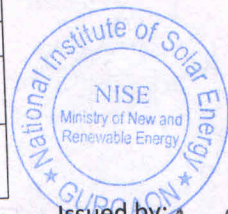
Approved by:

P. K. Mishra
23/12/16

Issued by:

P. K. Mishra
23/12/2016

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National Institute of Solar Energy

PV WATER PUMPING SYSTEM

(Testing Model: User's Specifications)

SPV Water Pump System Submitted By: M/s Kalinga Renewable Energy Manufacturers Pvt.
Ltd. 503-C, Panchmukhi, Atala, Baliana,
Bhubaneshwar, Odisha-752101, India

S.No.	Test Description	Observations	Remarks
4	Testing of complete SPV pump		
4.1	Average Output of water per day at Irradiation of 7.15 Kwh/sq.m. at a total head of 10 meters	23250 liters	
4.2	Max. total dynamic head	12 meters	
5	Tracking system	Manual 3 times a day	
6	Protections (Controller)		
6.1	Against dry running	Provided	
6.2	Against open circuit and short-circuit	Provided	
6.3	Against reverse polarity	Provided	
7	Others		
7.1	Design of PV array	Modular	
7.2	DC/AC switch	Provided	
7.3	Connection cable	Provided	

Comments: The Water pumping System sample was tested at NISE with total head of 10 meters, the radiation data was measured on the array surface from dawn to dusk, and was extrapolated for 7.15 KWh/sq.m.. Remote monitoring facility is not provided It is mandatory to be provided.

Tested by:

Abgand

Prepared by:

Renu

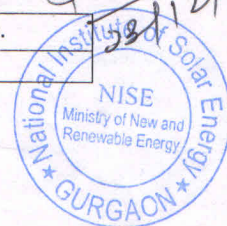
Approved by:

P. K. Kumar
23/12/16

Issued by:

Shree
23/12/2016

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National Institute of Solar Energy

PV WATER PUMPING SYSTEM

(Testing Model: User's Specifications)

SPV Water Pump System Submitted By: M/s Kalinga Renewable Energy Manufacturers Pvt.
Ltd. 503-C, Panchmukhi, Atala, Balianata,
Bhubaneswar, Odisha-752101, India

Peak Wattages of Individual PV Modules tested at National Institute of Solar Energy, Gurgaon
vide report no. 42/73/NISE/2016-17 dated 14/06/2016

Model: KRM 100

S.NO.	Voc(V)	Isc(A)	V _{max} (V)	I _{max} (A)	P _{max} (W)	F.F (%)	M. EFF. (%)
1415000001	44.62	2.78	37.01	2.62	97.2	78.3	14.4
1415000002	44.62	2.79	37.00	2.62	97.1	78.0	14.4
1415000004	44.59	2.80	37.02	2.61	96.9	77.5	14.4
1415000007	44.74	2.77	37.26	2.60	97.0	78.2	14.4
1415000010	44.95	2.81	37.25	2.64	98.5	77.9	14.6

Total P_{max} = 486.7 Wp

Tested by:

Algoorah

Prepared by:

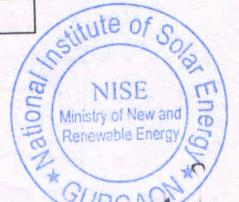
Renu

Approved by:

P. J. Kumar
23/12/16

Issued by:

Shukla
23/12/2016



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NISE

National Institute of Solar Energy

(An Autonomous Institution of MNRE, GOI)

16 K.m Stone, Gurgaon-Faridabad Road, Gwal Phari, Gurgaon (Haryana) - 122003

Customer Service Cell

Feed Back

Company Name:
Company Address:
Name of Person giving Feedback:
Designation & Location:

Sr. No.	Particulars	Feedback Ratings			
		Excellent*	Good	Average	Poor*
1.	Content of Report				
2.	Sample Handling				
3.	Time Taken				
4.	Test Report Format				
5.	Courtesy				

*Please give comments:

Remarks: _____

Signature & Date of Client

(Name of Authorised Person)

For Official Use

Acknowledged by _____ Date _____ Mode: By Post/Hand/E-mail

T./A/T.M.E: