

# TEST REPORT

Report No. : HY202101023

Specimen Description : Hybrid Inverter  
HYD 6000-EP (HYD 3000-EP, HYD  
3680-EP, HYD 4000-EP, HYD 4600-  
Model/Type : EP, HYD 5000-EP, HYD 5500-EP)

Application : Shenzhen SOFARSOLAR Co., Ltd.

Laboratory : Shenzhen Huayan Testing technology Co., Ltd.

Address : 101, Factory Building 10, Rongcheng Research Town, Xinfeng 1<sup>st</sup> Road,  
Yanguang Community, Xili Street, Nanshan District, Shenzhen.

Tel : 0086-755-23227536

Web : <http://www.huayantesting.com/>

# TEST REPORT

Application : Shenzhen SOFARSOLAR Co., Ltd.

Address : 401, Building 4, AnTongDa Industrial Park, District 68,  
XingDong Community, XinAn Street, BaoAn District,  
Shenzhen, China

Specimen Description : Hybrid Inverter

Model/Type : HYD 6000-EP (HYD 3000-EP, HYD 3680-EP, HYD  
4000-EP, HYD 4600-EP, HYD 5000-EP, HYD 5500-  
EP)

Trade Mark : 

Quantity : 1pcs

Serial/Specimen No. : PO202101025-1#

Specimen Source : Submitted by application

Received Date : Jan.13,2021

Processed Date : Jan.18, 2021

Test Criteria : IEC 60068-2-1:2007, IEC 60068-2-2:2007  
IEC 60068-2-14:2009, IEC 60068-2-30:2005

Tested:

Gan Qian Biao

Date:

Jan.20,2021

Checked:

Eleven Wang

Date:

Jan.20,2021

Approved:

July Liu

Date:

Jan.20,2021



## CONTENTS

1. SUMMARY.....	4
2. DECLACATION OF SPECIMEN .....	4
3. AMBIENT CONDITION .....	5
4. INITIAL TEST .....	5
5. LOW TEMPERATURE TEST .....	6
5.1 Test requirement.....	6
5.2 Acceptance Criteria .....	6
5.3 Test Results.....	6
5.4 Test Conclusion.....	6
5.5 Test Photo and profile.....	7
6. DRY HEAT TEST .....	8
6.1 Test requirement.....	8
6.2 Acceptance Criteria .....	8
6.3 Test Results.....	8
6.4 Test Conclusion.....	8
6.5 Test Photo and profile.....	9
7. TEMPERATURE CHANGE TEST .....	10
7.1 Test requirement.....	10
7.2 Acceptance Criteria .....	10
7.3 Test Results.....	10
7.4 Test Conclusion.....	10
7.5 Test Photo and profile.....	11
8. CYCLIC DAMP HEAT TEST .....	12
8.1 Test requirement.....	12
8.2 Acceptance Criteria .....	12
8.3 Test Results.....	12
8.4 Test Conclusion.....	12

8.5 Test Photo and profile..... 13  
APPENDIX A EQUIPMENT USED FOR TEST ..... 14  
APPENDIX B IMPORTANT STATEMENTS ..... 15

## 1. SUMMARY

**Table 1 Test overview**

Test Items	Test Status	Serial/Specimen No.	Test Conclusion	Processed Date
Low temperature test	Unpackaged, non-operating	PO202101025-1#	Pass	Jan.13, 2021~ Jan.14, 2021
Dry heat test	Unpackaged, non-operating	PO202101025-1#	Pass	Jan.14, 2021~ Jan.15, 2021
Temperature change Test	Unpackaged, non-operating	PO202101025-1#	Pass	Jan.15, 2021~ Jan.16, 2021
Cyclic damp heat test	Unpackaged, non-operating	PO202101025-1#	Pass	Jan.16, 2021~ Jan.18, 2021

## 2. DECLARATION OF SPECIMEN

The model/type under test was HYD 6000-EP, but there was no great difference between HYD 6000-EP and HYD 3000-EP, HYD 3680-EP, HYD 4000-EP, HYD 4600-EP, HYD 5000-EP, HYD 5500-EP except number of components used, refer to table 2 shown as below for more information.

**Table 2 Difference between each model/type**

Item	HYD 3000-EP	HYD 3680-EP	HYD 4000-EP	HYD 4600-EP	HYD 5000-EP	HYD 5500-EP	HYD 6000-EP
R332,R334, R336	(NC,0Ω,NC)				(0Ω,NC,0Ω)		
BUS film capacitor	6pcs				8pcs		
INV inductor	1,035mH				0,35mH		
R123,R132	(499 Ω,499 Ω)				(1.5kΩ,1.5kΩ)		

### **3. AMBIENT CONDITION**

Ambient Temperature (°C): 17~23

Relative Humidity (%): 54~65

Atmospheric Pressure (kPa) :100~101

### **4. INITIAL TEST**

Before the test, the specimen exhibited no appearance and structure damage.

## 5. LOW TEMPERATURE TEST

### 5.1 Test requirement

Test criteria: IEC 60068-2-1:2007

Specimen No.: PO202101025-1#

Specimen status: Unpackaged, non-operating

Temperature:  $(-25\pm 2)^{\circ}\text{C}$

Rate of temperature change:  $1^{\circ}\text{C}/\text{min}$

Test duration: 16h

Recovery duration: 2h

### 5.2 Acceptance Criteria

After the test, the specimen should exhibit no appearance or structure damage.

### 5.3 Test Results

After the test, the specimen exhibited no appearance and structure damage.

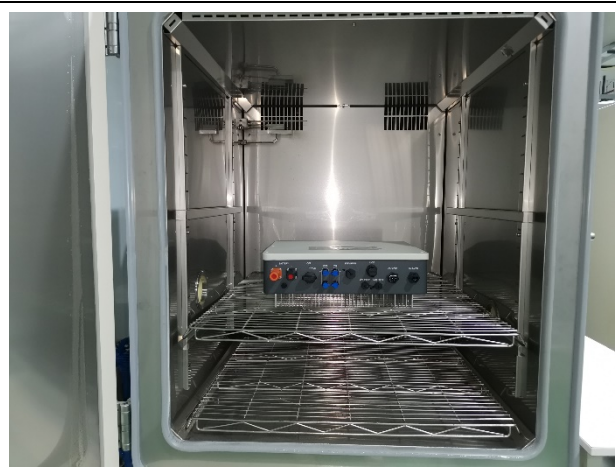
### 5.4 Test Conclusion

Pass

### 5.5 Test Photo and profile



No.5.5-1 Inspection before test

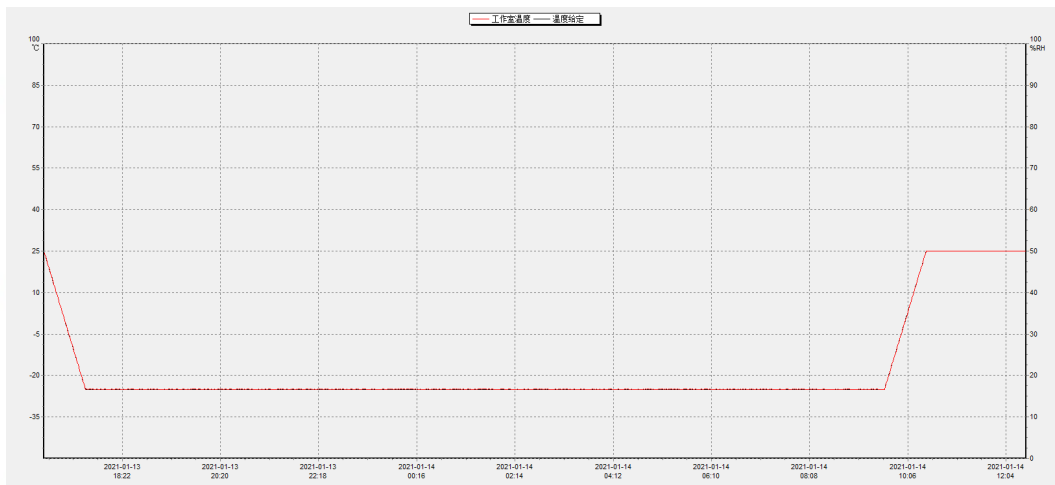


No.5.5-2 Low temperature test



No.5.5-3 Inspection after test

N/A



No.5.5-4 Low temperature test profile



## 6. DRY HEAT TEST

### 6.1 Test requirement

Test criteria: IEC 60068-2-2:2007

Specimen No.: PO202101025-1#

Specimen status: Unpackaged, non-operating

Temperature:  $(60\pm 2)^{\circ}\text{C}$

Rate of temperature change:  $1^{\circ}\text{C}/\text{min}$

Test duration: 16h

Recovery duration: 2h

### 6.2 Acceptance Criteria

After the test, the specimen should exhibit no appearance or structure damage.

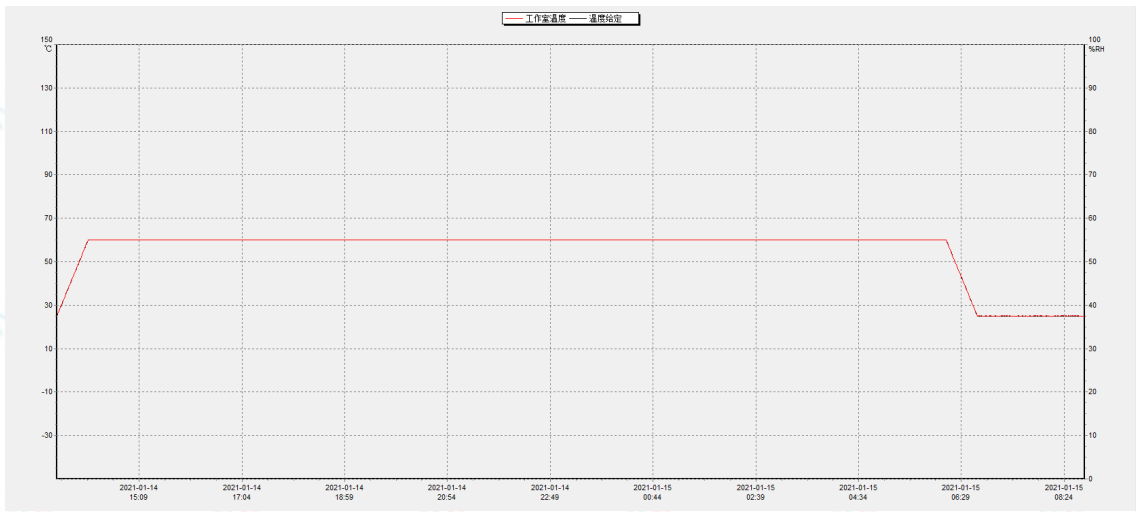
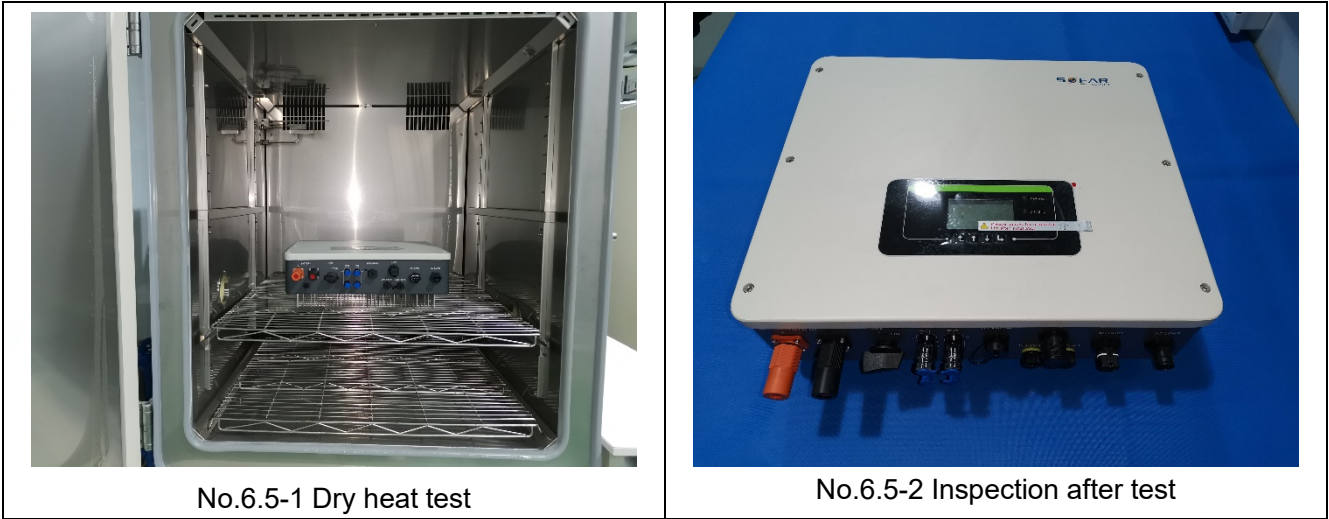
### 6.3 Test Results

After the test, the specimen exhibited no appearance and structure damage.

### 6.4 Test Conclusion

Pass

### 6.5 Test Photo and profile



No.6.5-3 Dry heat test profile

## 7. TEMPERATURE CHANGE TEST

### 7.1 Test requirement

Test criteria: IEC 60068-2-14:2009

Specimen No.: PO202101025-1#

Test status: Unpackaged, non-operating

Low temperature:  $(-25\pm 2)^{\circ}\text{C}$

High temperature:  $(60\pm 2)^{\circ}\text{C}$

Dwell time: 180min at each temperature extreme

Temperature change rate:  $1^{\circ}\text{C}/\text{min}$

Number of Cycles: 2

Test duration: 18h

### 7.2 Acceptance Criteria

After the test, the specimen should exhibit no appearance or structure damage.

### 7.3 Test Results

After the test, the specimen exhibited no appearance and structure damage.

### 7.4 Test Conclusion

Pass

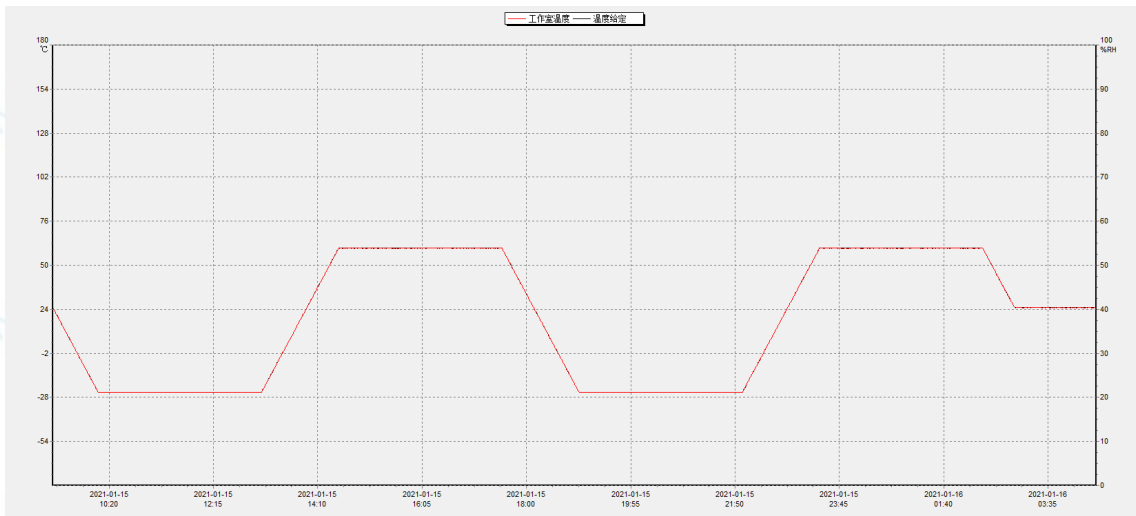
### 7.5 Test Photo and profile



No.7.5-1 Temperature change test



No.7.5-2 Inspection after test



No.7.5-3 Temperature change test profile

## 8. CYCLIC DAMP HEAT TEST

### 8.1 Test requirement

Test criteria: IEC 60068-2-30:2005 Db , method 1

Specimen No.: PO202101025-1#

Specimen status: Unpackaged, non-operating

Test procedure: Refer to Table 3

**Table 3 Procedure**

Step	Description	Temperature (°C)	Relative Humidity (%)	Duration (min)
1	Increase humidity	25±2	97±2	0.5
2	Increase temperature	40±2	97±2	3
3	Dwell	40±2	93±2	9
4	Decrease temperature	25±2	97±2	3
5	Dwell	25±2	97±2	9
6	Decrease humidity	25±2	75±2	1
7	Dwell	25±2	75±2	2

Cycles mode: From step 2 to step 5, Number of cycles: 2

### 8.2 Acceptance Criteria

After the test, the specimen should exhibit no appearance or structure damage.

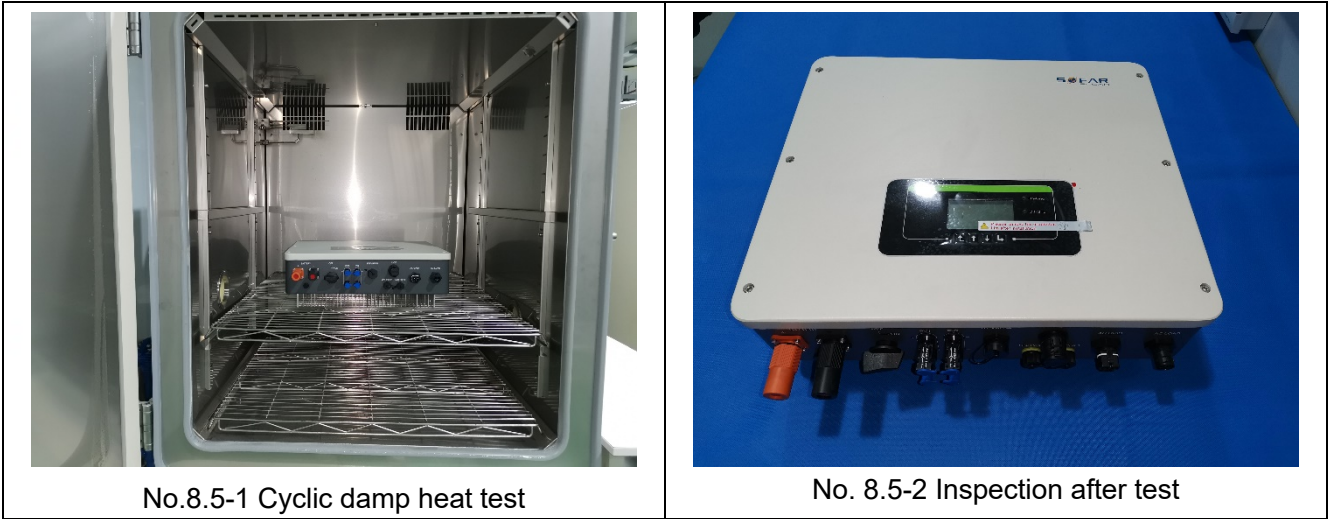
### 8.3 Test Results

After the test, the specimen exhibited no appearance and structure damage.

### 8.4 Test Conclusion

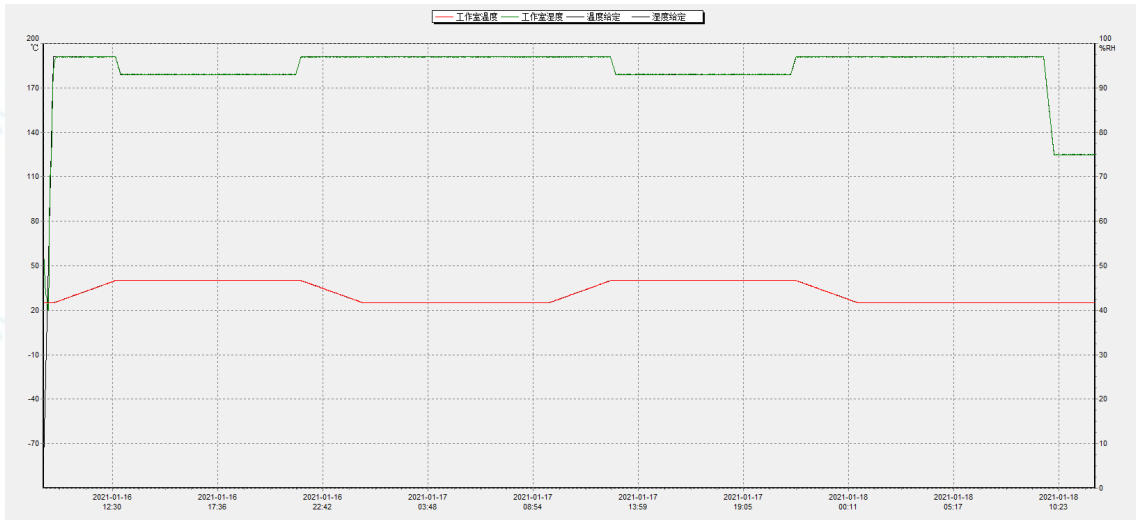
Pass

### 8.5 Test Photo and profile



No.8.5-1 Cyclic damp heat test

No. 8.5-2 Inspection after test



No. 8.5-3 Cyclic damp heat test profile

**APPENDIX A EQUIPMENT USED FOR TEST****Table 4 Equipment used**

No.	Equipment	Equipment No.	Model/Type	Manufacturer	Due to
1	Temperature and humidity test chamber	201900182	SDJ61F	CHONGQING YINHE	Jul.22, 2021

## APPENDIX B IMPORTANT STATEMENTS

### STATEMENTS

1. Shenzhen Huayan Testing Technology Co., Ltd. (Short as Huayan Testing) is a professional third-party inspection institute.
2. Huayan Testing is committed to assuring the scientificness, impartiality and accuracy of all tests carried out, responsibility for test data gained, and keeping confidential of all test specimen and technical documents provided.
3. The CMA, CNAS and other laboratory accreditation icons on the first page of the report indicate that the test items Huayan Testing has obtained the corresponding laboratory capability, if necessary, it will be explained detail.
4. Any report having not been signed by relevant responsible engineer, reviewer or authorized approver, or having been altered without authorization, or without both the Dedicated report seal and its across-page seal is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of huayan testing.
5. The symbol “\*” appears before the test item indicating the test item is a subcontracted item.
6. The test results presented in the report apply only to the tested specimen. The product information and the applicant information are provided by the customer and huayan testing assumes no responsibility for their validity and accuracy.
7. Any use of Huayan testing test result for advertisement of the tested material or product must be approved in writing by Huayan testing.
8. Any objection to report issued by huayan testing should be submitted to huayan testing within 15 days after the issuance of the test.
9. Huayan testing is not responsible for recalling the electronic version of the original report when any revision is made to them. The applicant assumes the responsibility of providing the revised version to any interested party who uses them.

---The end---