

## Test report

Report No. GZES200501879801

Date: 2020-06-29

The following sample was submitted and identified on behalf of the client as:

Applicant: **Shenzhen SOFAR SOLAR Co., Ltd.**  
401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community,  
XinAn Street, BaoAn District, Shenzhen City, Guangdong Province, P.R. China

Testing location/address: SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch  
198 Kezhu Road, Science City, Economic & Technology Development Area,  
Guangzhou, Guangdong, China

The standards/method: Refer to IEC 60529: 2013-08 (Ed.2.2) clause 13 and clause 14

Test item description: IP65

Trade Mark:



Model/Type for test: HYD 20KTL-3PH

Variant Models HYD 15KTL-3PH, HYD 10KTL-3PH;  
HYD 8KTL-3PH, HYD 6KTL-3PH, HYD 5KTL-3PH;

Ratings: See page 2 to page 3

Sample receipt date: 2020-06-25

Testing date: 2020-06-25 to 2020-06-26

Test result : Pass

Remark: Throughout this report a point is used as the decimal separator.  
When determining for test conclusion, measurement uncertainty of tests has  
been considered.



*Hugo Zhang*

Hugo Zhang  
Project Engineer

*Roger Hu*

Roger Hu  
Technical Reviewer

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Date: 2020-06-29

## TEST RESULTS:

Test items	Test condition	Test result
IP6X	The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump, The suction connection shall be made to a hole specially provided for the test.	No deposit of dust is observable inside the enclosure.
IPX5	Internal diameter of the nozzle: 6.3 mm Delivery rate: 12.5 L/min Core of the substantial stream: circle of approximately 40 mm diameter at 2.5 m distance from nozzle Test duration: 3 min Distance from nozzle to enclosure surface: between 2.5 m and 3 m.	No water inside the enclosure

## Rating:

**SOFAR SOLAR**  
Hybrid Inverter

**Model No: HYD 20KTL-3PH**

Max.DC Voltage	1000V
MPPT Voltage Range	180~960V
Max. Input Current	25/25A
Max. PV Isc	30/30A
Battery Type	Li-Ion
Battery Voltage Range	180~800V
Battery Max. Charging Current	25/25A
Battery Max. Discharging Current	25/25A
Nominal Grid/Back-up Voltage	3/N/PE 380/400V
Nominal Grid/Back-up Frequency	50/60Hz
Max. Current Output to Grid	32A
Max. Power Output to Grid	22000VA
Max. Current from Grid	58A
Max. Power from Grid	40000VA
Back-up Max. Output Current	32A
Back-up Max. Output Power	22000VA
Power Factor	1 (adjustable +/- 0.8)
Operating Temperature Range	-30~+60°C
Ingress Protection	IP65
Protective Class	Class I
Inverter Topology	Non-isolated
Flicker Impedance	Z=0.4+j0.25Ω
Overvoltage Category	AC III, DC II

Manufacturer : Shenzhen SOFAR SOLAR Co.,Ltd.  
Address : 401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China  
SAA VDE0126-1-1, VDE-AR-N4105  
G98, G99, EN50438, AS4777, UTE C15-712-1

**SOFAR SOLAR**  
Hybrid Inverter

**Model No: HYD 15KTL-3PH**

Max.DC Voltage	1000V
MPPT Voltage Range	180~960V
Max. Input Current	25/25A
Max. PV Isc	30/30A
Battery Type	Li-Ion
Battery Voltage Range	180~800V
Battery Max. Charging Current	25/25A
Battery Max. Discharging Current	25/25A
Nominal Grid/Back-up Voltage	3/N/PE 380/400V
Nominal Grid/Back-up Frequency	50/60Hz
Max. Current Output to Grid	24A
Max. Power Output to Grid	16500VA
Max. Current from Grid	44A
Max. Power from Grid	30000VA
Back-up Max. Output Current	24A
Back-up Max. Output Power	16500VA
Power Factor	1 (adjustable +/- 0.8)
Operating Temperature Range	-30~+60°C
Ingress Protection	IP65
Protective Class	Class I
Inverter Topology	Non-isolated
Flicker Impedance	Z=0.4+j0.25Ω
Overvoltage Category	AC III, DC II

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**SOFAR SOLAR**  
Hybrid Inverter

**Model No: HYD 10KTL-3PH**

Max.DC Voltage	1000V
MPPT Voltage Range	180~960V
Max. Input Current	25/25A
Max. PV Isc	30/30A
Battery Type	Li-Ion
Battery Voltage Range	180~800V
Battery Max. Charging Current	25/25A
Battery Max. Discharging Current	25/25A
Nominal Grid/Back-up Voltage	3/N/PE 380/400V
Nominal Grid/Back-up Frequency	50/60Hz
Max. Current Output to Grid	16A
Max. Power Output to Grid	11000VA
Max. Current from Grid	29A
Max. Power from Grid	20000VA
Back-up Max. Output Current	16A
Back-up Max. Output Power	11000VA
Power Factor	1 (adjustable +/- 0.8)
Operating Temperature Range	-30~+60°C
Ingress Protection	IP65
Protective Class	Class I
Inverter Topology	Non-isolated
Flicker Impedance	Z=0.4+j0.25Ω
Overvoltage Category	AC III, DC II

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**SOFAR SOLAR**  
Hybrid Inverter

**Model No: HYD 8KTL-3PH**

Max.DC Voltage	1000V
MPPT Voltage Range	180~960V
Max. Input Current	12.5/12.5A
Max.PV Isc	15/15A
Battery Type	Li-Ion
Battery Voltage Range	180~800V
Battery Max. Charging Current	25A
Battery Max. Discharging Current	25A
Nominal Grid/Back-up Voltage	3/N/PE, 380/400V
Nominal Grid/Back-up Frequency	50/60Hz
Max. Current Output to Grid	13A
Max. Power Output to Grid	8800VA
Max. Current from Grid	24A
Max. Power from Grid	16000VA
Back-up Max. Output Current	13A
Back-up Max. Output Power	8800VA
Power Factor	1 (adjustable +/-0.8)
Operating Temperature Range	-30~+60°C
Ingress Protection	IP65
Protective Class	Class I
Inverter Topology	Non-isolated
Flicker Impedance	Z=0.4+j0.25Ω
Overvoltage Category	AC III, DC II

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**SOFAR SOLAR**  
Hybrid Inverter

**Model No: HYD 6KTL-3PH**

Max.DC Voltage	1000V
MPPT Voltage Range	180~960V
Max. Input Current	12.5/12.5A
Max.PV Isc	15/15A
Battery Type	Li-Ion
Battery Voltage Range	180~800V
Battery Max. Charging Current	25A
Battery Max. Discharging Current	25A
Nominal Grid/Back-up Voltage	3/N/PE, 380/400V
Nominal Grid/Back-up Frequency	50/60Hz
Max. Current Output to Grid	10A
Max. Power Output to Grid	6600VA
Max. Current from Grid	17A
Max. Power from Grid	12000VA
Back-up Max. Output Current	10A
Back-up Max. Output Power	6600VA
Power Factor	1 (adjustable +/-0.8)
Operating Temperature Range	-30~+60°C
Ingress Protection	IP65
Protective Class	Class I
Inverter Topology	Non-isolated
Flicker Impedance	Z=0.4+j0.25Ω
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**SOFAR SOLAR**  
Hybrid Inverter

**Model No: HYD 5KTL-3PH**

Max.DC Voltage	1000V
MPPT Voltage Range	180~960V
Max. Input Current	12.5/12.5A
Max.PV Isc	15/15A
Battery Type	Li-Ion
Battery Voltage Range	180~800V
Battery Max. Charging Current	25A
Battery Max. Discharging Current	25A
Nominal Grid/Back-up Voltage	3/N/PE, 380/400V
Nominal Grid/Back-up Frequency	50/60Hz
Max. Current Output to Grid	8A
Max. Power Output to Grid	5500VA
Max. Current from Grid	15A
Max. Power from Grid	10000VA
Back-up Max. Output Current	8A
Back-up Max. Output Power	5500VA
Power Factor	1 (adjustable +/-0.8)
Operating Temperature Range	-30~+60°C
Ingress Protection	IP65
Protective Class	Class I
Inverter Topology	Non-isolated
Flicker Impedance	Z=0.4+j0.25Ω
Overvoltage Category	AC III, DC II

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**Appendix Photos:**

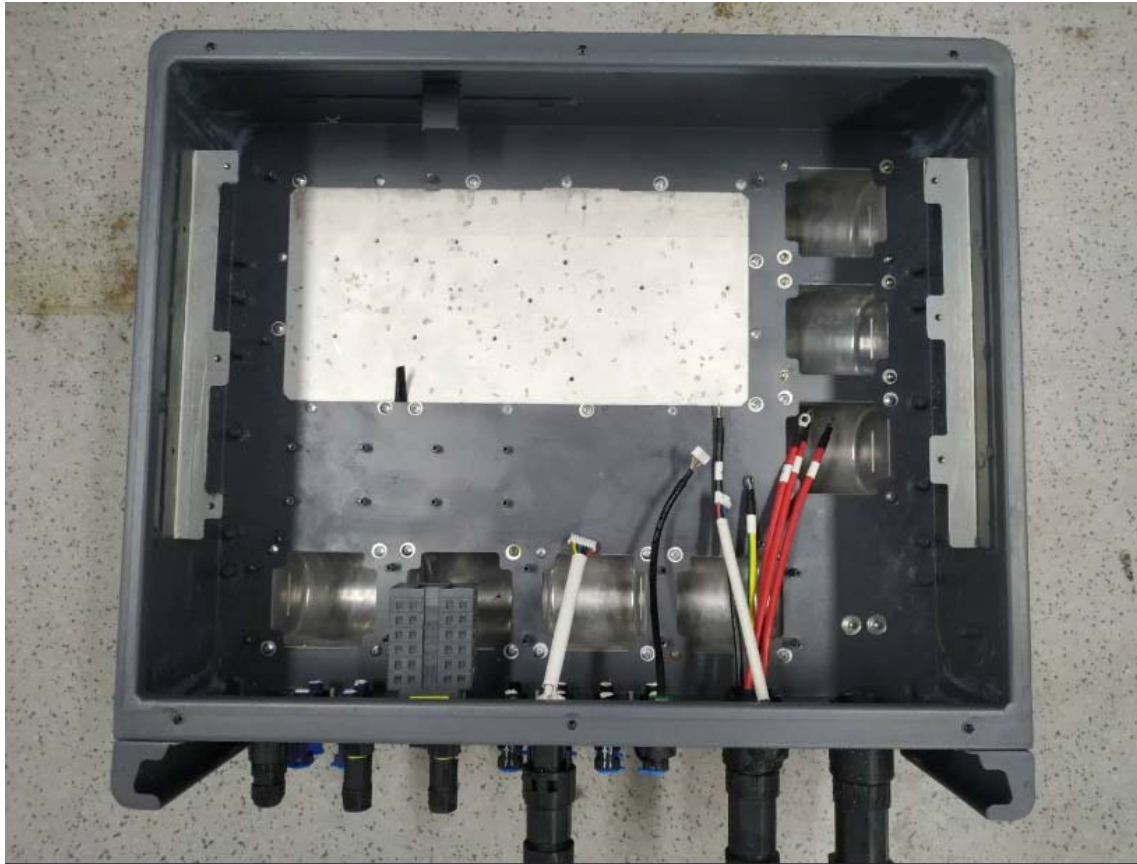


**IP6X test**



**IPX5 test**

After IP65 test, no deposit of dust and no water are observable inside the enclosure



\*\*\*\*\*End of report\*\*\*\*\*