

# CERTIFICATE OF CONFORMITY

## CERTIFICATO DI CONFORMITÀ

Issued to: SUZHOU JOHNRAY SOLAR ENERGY CO., LTD  
Rilasciato a: Room 209, Building 1, Lejiahui Business Plaza, New District, Suzhou, Jiangsu China

For the product: Hybrid Inverter  
*Tipo prodotto:*

Trade name:   
*Marchio:*

Type/Model: JH-3K-TH, JH-4K-TH, JH-5K-TH, JH-6K-TH, JH-8K-TH, JH-10K-TH, JH-12K-TH  
*Riferimento modello:* JH-15K-TH, JH-17K-TH, JH-20K-TH, JH-25K-TH, JH-30K-TH  
JH-3K-THP, JH-4K-THP, JH-5K-THP, JH-6K-THP, JH-8K-THP, JH-10K-THP, JH-12K-THP

Ratings: See Annex  
*Dati di targa:*

Manufactured by: SUZHOU JOHNRAY SOLAR ENERGY CO., LTD  
*Costruttore:* Room 209, Building 1, Lejiahui Business Plaza, New District, Suzhou, Jiangsu China

Requirements: CEI 0-21:2022-03  
*Requisiti:* *Regola tecnica di riferimento per la connessione di Utenti attivi e passivi alle reti BT delle imprese distributrici di energia elettrica*

This Test Certificate is granted on account of an examination by DEKRA, the results of which are laid down in a confidential file no. 6170293.51

*Il presente certificato è rilasciato a causa di un esame da parte di DEKRA, i cui risultati sono riportati in un file riservato n. 6170293.51*

The examination has been carried out on one single specimen or several specimens of the product, submitted by the manufacturer. The certificate does not include an assessment of the manufacturer's production.

Conformity of his production with the specimen tested by DEKRA is not the responsibility of DEKRA.

*Il sottoscritto dichiara che il prodotto di cui sopra è conforme ai requisiti tecnici menzionati. Questo attestato di conformità è rilasciato sulla base dei risultati di prova riferiti nel rapporto sopra menzionato.*

*La valutazione non include una verifica della produzione di serie né del luogo di produzione.*

Shanghai, 4 December 2023 Certificate Number: 6170293.02COC  
It expires at the latest on: 4 December 2028

DEKRA Testing and Certification (Shanghai) Ltd.



Cliff Lin  
Certification Manager

© Integral publication of this certificate and adjoining reports is allowed

Accreditation of the certification body by IAS according to ISO/IEC 17065 for products.  
Accreditation is valid in the areas of certification mentioned in the certificate.

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## Ratings of the testing Hybrid Inverter:

Valutazioni dell'invertitore ibrido di prova:

Model list / Ratings of the test product				
Model	JH-3K-TH	JH-4K-TH	JH-5K-TH	JH-6K-TH
<b>PV input</b>				
P pv Max(kW)	5	6	7.5	9
Vmax PV (Vdc) (absolute Max.)	1000	1000	1000	1000
Isc PV (absolute Max.) (A)	30*2	30*2	30*2	30*2
Number MPP trackers	2	2	2	2
Number input strings	1/1	1/1	1/1	1/1
Max. PV input current (A)	20*2	20*2	20*2	20*2
MPPT voltage range (Vdc)	150-850	150-850	150-850	150-850
Vdc range @ full power (Vdc)	200-850	200-850	200-850	250-850
<b>Battery (charge/discharge)</b>				
Battery type	Li-ion/Lead-acid			
Battery Normal Voltage Range (Vdc)	150-800(Field adapt battery voltage range)			
Max charge/discharge Current(A)	30	30	30	30
Max charge/discharge Power(kW)	3	4	5	6
<b>AC Grid (input and output)</b>				
Normal AC Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Normal AC Current (A)	4.4	5.8	7.3	8.7
Max. cont. input/output current (A)	8 / 5.3	10.5 / 7	13 / 8.5	16 / 10.5
Rated Power (kW)	3	4	5	6
Rated Apparent Power (kVA)	3	4	5	6
Max. cont. input/output Power (kW)	4.5 / 3.3	6 / 4.4	7.5 / 5.5	9 / 6.6
Max. cont. Apparent input/output Power (kVA)	4.5 / 3.3	6 / 4.4	7.5 / 5.5	9 / 6.6
Power factor(adjustable)	1.0( -0.8~ +0.8)			
<b>AC Load output (stand alone)</b>				
Normal Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Nominal Current (A)	4.4	5.8	7.3	8.7
Max. cont. current (A)	5.3	7	8.5	10.5
Max. cont. Power (kW)	3	4	5	6
Rated Apparent Power (kVA)	3	4	5	6
Max. cont. Apparent Power (kVA)	3	4	5	6
Power factor	1.0			
<b>Others</b>				
Ingress protection (IP)	IP65			
Protective class	Class I			
Temperature (°C)	-25°C to +60°C (Derating 45°C)			
Inverter Isolation	Non-isolated (PV - AC - BAT)			
Overvoltage category	OVC III (AC Main), OVC II (PV)			

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Model	JH-8K-TH	JH-10K-TH	JH-12K-TH	JH-15K-TH
<b>PV input</b>				
P <sub>pv</sub> Max(kW)	12	15	18	22.5
V <sub>max</sub> PV (Vdc) (absolute Max.)	1000	1000	1000	1000
I <sub>sc</sub> PV (absolute Max.) (A)	30*2	30*2	30*2	30+48
Number MPP trackers	2	2	2	2
Number input strings	1/1	1/1	1/1	1/2
Max. PV input current (A)	20*2	20*2	20*2	20+32
MPPT voltage range (Vdc)	150-850	150-850	150-850	150-850
Vdc range @ full power (Vdc)	300-850	500-850	500-850	500-850
<b>Battery (charge/discharge)</b>				
Battery type	Li-ion/Lead-acid			
Battery Normal Voltage Range (Vdc)	150-800(Field adapt battery voltage range)			
Max charge/discharge Current(A)	30	30	30	50
Max charge/discharge Power(kW)	8	10	12	15
<b>AC Grid (input and output)</b>				
Normal AC Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Normal AC Current (A)	11.6	14.5	17.4	21.8
Max. cont. input/output current (A)	20 / 13.5	26 / 17	32 / 21.5	40.5 / 27
Rated Power (kW)	8	10	12	15
Rated Apparent Power (kVA)	8	10	12	15
Max. cont. input/output Power (kW)	12 / 8.8	15 / 11	18 / 13.2	22.5 / 16.5
Max. cont. Apparent input/output Power (kVA)	12 / 8.8	15 / 11	18 / 13.2	22.5 / 16.5
Power factor(adjustable)	1.0( -0.8~ +0.8)			
<b>AC Load output (stand alone)</b>				
Normal Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Nominal Current (A)	11.6	14.5	17.4	21.8
Max. cont. current (A)	13.5	17	21.5	27
Max. cont. Power (kW)	8	10	12	15
Rated Apparent Power (kVA)	8	10	12	15
Max. cont. Apparent Power (kVA)	8	10	12	15
Power factor	1.0			
<b>Others</b>				
Ingress protection (IP)	IP65			
Protective class	Class I			
Temperature (°C)	-25°C to +60°C (Derating 45°C)			
Inverter Isolation	Non-isolated (PV - AC - BAT)			
Overvoltage category	OVC III (AC Main), OVC II (PV)			

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Model	JH-17K-TH	JH-20K-TH	JH-25K-TH	JH-30K-TH
<b>PV input</b>				
P <sub>pv</sub> Max(kW)	25.5	30	37.5	45
V <sub>max</sub> PV (Vdc) (absolute Max.)	1000	1000	1000	1000
I <sub>sc</sub> PV (absolute Max.) (A)	48*2	48*2	60*2	60*2
Number MPP trackers	2	2	2	2
Number input strings	2/2	2/2	2/2	2/2
Max. PV input current (A)	32*2	32*2	40*2	40*2
MPPT voltage range (Vdc)	150-850	150-850	150-850	150-850
Vdc range @ full power (Vdc)	500-850	500-850	500-850	500-850
<b>Battery (charge/discharge)</b>				
Battery type	Li-ion/Lead-acid			
Battery Normal Voltage Range (Vdc)	150-800(Field adapt battery voltage range)			
Max charge/discharge Current(A)	50	50	60	60
Max charge/discharge Power(kW)	17	20	25	30
<b>AC Grid (input and output)</b>				
Normal AC Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Normal AC Current (A)	24.7	29	36.3	43.5
Max. cont. input/output current (A)	45 / 30	48 / 32	60 / 40	72 / 48
Rated Power (kW)	17	20	25	30
Rated Apparent Power (kVA)	17	20	25	30
Max. cont. input/output Power (kW)	25.5 / 18.7	30 / 22	37.5 / 27.5	45 / 33
Max. cont. Apparent input/output Power (kVA)	25.5 / 18.7	30 / 22	37.5 / 27.5	45 / 33
Power factor(adjustable)	1.0( -0.8~ +0.8)			
<b>AC Load output (stand alone)</b>				
Normal Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Nominal Current (A)	24.7	29	36.3	43.5
Max. cont. current (A)	30	32	40	48
Max. cont. Power (kW)	17	20	25	30
Rated Apparent Power (kVA)	17	20	25	30
Max. cont. Apparent Power (kVA)	17	20	25	30
Power factor	1.0			
<b>Others</b>				
Ingress protection (IP)	IP65			
Protective class	Class I			
Temperature (°C)	-25°C to +60°C (Derating 45°C)			
Inverter Isolation	Non-isolated (PV - AC - BAT)			
Overvoltage category	OVC III (AC Main), OVC II (PV)			

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Model	JH-3K-THP	JH-4K-THP	JH-5K-THP	JH-6K-THP
<b>PV input</b>				
P <sub>pv</sub> Max(kW)	5	6	7.5	9
V <sub>max</sub> PV (Vdc) (absolute Max.)	1000	1000	1000	1000
I <sub>sc</sub> PV (absolute Max.) (A)	30*2	30*2	30*2	30*2
Number MPP trackers	2	2	2	2
Number input strings	1/1	1/1	1/1	1/1
Max. PV input current (A)	20*2	20*2	20*2	20*2
MPPT voltage range (Vdc)	150-850	150-850	150-850	150-850
Vdc range @ full power (Vdc)	200-850	200-850	200-850	250-850
<b>Battery (charge/discharge)</b>				
Battery type	Li-ion/Lead-acid			
Battery Normal Voltage Range (Vdc)	80-600(Field adapt battery voltage range)			
Max charge/discharge Current(A)	50	50	50	50
Max charge/discharge Power(kW)	3	4	5	6
<b>AC Grid (input and output)</b>				
Normal AC Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Normal AC Current (A)	4.4	5.8	7.3	8.7
Max. cont. input/output current (A)	8 / 5.3	10.5 / 7	13 / 8.5	16 / 10.5
Rated Power (kW)	3	4	5	6
Rated Apparent Power (kVA)	3	4	5	6
Max. cont. input/output Power (kW)	4.5 / 3.3	6 / 4.4	7.5 / 5.5	9 / 6.6
Max. cont. Apparent input/output Power (kVA)	4.5 / 3.3	6 / 4.4	7.5 / 5.5	9 / 6.6
Power factor(adjustable)	1.0( -0.8~ +0.8)			
<b>AC Load output (stand alone)</b>				
Normal Voltage (VAC)	3P+N+PE/3P+PE 230/400			
Frequency (Hz)	50 / 60			
Nominal Current (A)	4.4	5.8	7.3	8.7
Max. cont. current (A)	5.3	7	8.5	10.5
Max. cont. Power (kW)	3	4	5	6
Rated Apparent Power (kVA)	3	4	5	6
Max. cont. Apparent Power (kVA)	3	4	5	6
Power factor	1.0			
<b>Others</b>				
Ingress protection (IP)	IP65			
Protective class	Class I			
Temperature (°C)	-25°C to +60°C (Derating 45°C)			
Inverter Isolation	Non-isolated (PV - AC - BAT)			
Overvoltage category	OVC III (AC Main), OVC II (PV)			

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Model	JH-8K-THP	JH-10K-THP	JH-12K-THP
<b>PV input</b>			
P <sub>pv</sub> Max(kW)	12	15	18
V <sub>max</sub> PV (Vdc) (absolute Max.)	1000	1000	1000
I <sub>sc</sub> PV (absolute Max.) (A)	30*2	30*2	30*2
Number MPP trackers	2	2	2
Number input strings	1/1	1/1	1/1
Max. PV input current (A)	20*2	20*2	20*2
MPPT voltage range (Vdc)	150-850	150-850	150-850
Vdc range @ full power (Vdc)	300-850	500-850	500-850
<b>Battery (charge/discharge)</b>			
Battery type	Li-ion/Lead-acid		
Battery Normal Voltage Range (Vdc)	80-600(Field adapt battery voltage range)	120-650(Field adapt battery voltage range)	
Max charge/discharge Current(A)	50	50	50
Max charge/discharge Power(kW)	8	10	12
<b>AC Grid (input and output)</b>			
Normal AC Voltage (VAC)	3P+N+PE/3P+PE 230/400		
Frequency (Hz)	50 / 60		
Normal AC Current (A)	11.6	14.5	17.4
Max. cont. input/output current (A)	20 / 13.5	26 / 17	32 / 21.5
Rated Power (kW)	8	10	12
Rated Apparent Power (kVA)	8	10	12
Max. cont. input/output Power (kW)	12 / 8.8	15 / 11	18 / 13.2
Max. cont. Apparent input/output Power (kVA)	12 / 8.8	15 / 11	18 / 13.2
Power factor(adjustable)	1.0( -0.8~ +0.8)		
<b>AC Load output (stand alone)</b>			
Normal Voltage (VAC)	3P+N+PE/3P+PE 230/400		
Frequency (Hz)	50 / 60		
Nominal Current (A)	11.6	14.5	17.4
Max. cont. current (A)	13.5	17	21.5
Max. cont. Power (kW)	8	10	12
Rated Apparent Power (kVA)	8	10	12
Max. cont. Apparent Power (kVA)	8	10	12
Power factor	1.0		
<b>Others</b>			
Ingress protection (IP)	IP65		
Protective class	Class I		
Temperature (°C)	-25°C to +60°C (Derating 45°C)		
Inverter Isolation	Non-isolated (PV - AC - BAT)		
Overvoltage category	OVC III (AC Main), OVC II (PV)		

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Type of generating unit:

*Tipologia di apparato:*

Static Conversion Device <i>Dipositivo di conversione statica</i>	Interface Protection <i>Protezione di interfaccia</i>	Interface Protection Device <i>Dispositivo di interfaccia</i>	Rotating Generator Device <i>Dispositivo di generazione rotante</i>
Yes/Sì	Yes/Sì	Yes/Sì	No

REMARK: the device is capable to limit the  $I_{dc}$  to 0.5% of the nominal current

NOTA: Il dispositivo è in grado di limitare la  $I_{dc}$  allo 0.5% della corrente nominale

Hardware version: 1.01

*Versione hardware: 1.01*

Software version: V01

*Versione software: V01*

**The battery used for testing with the Hybrid Inverter covered by this certificate:**

*La batteria utilizzata per i test con l'invertitore ibrido coperto dal presente certificato:*

Manufacturer	SUZHOU JOHNRAY SOLAR ENERGY CO., LTD			
Battery Models	JRH25-S4	JRH25-S5	JRH25-S6	JRH25-S7
Nominal Voltage	204.8 V	256 V	307.2 V	358.4 V
Nominal capacity	50 Ah	50 Ah	50 Ah	50 Ah
CUS (Storage system useful capacity)	10.24 kWh	12.80 kWh	15.36 kWh	17.92 kWh
Battery Models	JRH25-S8	JRH25-S9	JRH25-S10	--
Nominal Voltage	409.6 V	460.8 V	512 V	
Nominal capacity	50 Ah	50 Ah	50 Ah	
CUS (Storage system useful capacity)	20.48 kWh	23.04 kWh	25.60 kWh	
Remark: The CB test certificate No. of the battery: DE 7-0799 If the battery module supports parallel connection, the charge/ discharge current is superimposed and is limited by the maximum current of the battery port of the Hybrid Inverter. The batteries are not integrated into the Hybrid Inverter and must be installed according to the local regulations.				

**Testing Laboratory:**

**Laboratorio prove:**

Testing Laboratory for CEI 0-21:2022-03

DEKRA Testing and Certification (Suzhou) Co., Ltd.

No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China

Accreditation Number: L5313 (CNAS-ILAC)

Testing Laboratory for EMC:

1. Intertek Testing Services Shanghai

Building No.86, 1198 Qinzhou Road (North), Caohejing Development Zone, Shanghai 200233, China

Accreditation Number: 3309.02 (A2LA-ILAC)

2. Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd.

No.103, Caobao Road, Xuhui District, Shanghai, China

Accreditation Number: L0130 (CNAS-ILAC)

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