

Change The World By Thin-Film Solar

 Hanergy
Thin Film Power

Hantile Product Manual

Hanergy Thin-film Power Group
Channel Sales Demodulment

Address: 5th Floor, B Block, North Star Century Center,
Beichenxi Road, Chaoyang District, Beijing City
Post Code: 100101
Telephone: 400-688-1566
Website: www.hanergythinfilmpower.com

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Introduction of Hanergy Thin Film Power Group

Hanergy Thin Film Power Group Ltd. is the high-tech energy corporation listed in Hong Kong Exchanges and Clearing Limited (stock code: 00566.HK), with the HQ at Hong Kong, primarily devoted to researching, developing and designing the whole production line of thin film power, as well as developing and operating the downstream thin film power project and products.

Since 2009, Hanergy Thin Film Power Group entered the industry of thin film generation, it has been committed to becoming the vanguard supplier of whole production line, and has been extending the business scope to the down-stream thin film power generation in 2013. Accordingly this group has been overall rapidly developed. It can be anticipated that, Hanergy Thin Film Power Group shall be committed to the assembly of production line, technology research and development, thin film power group project and application products for thin film power generation.

While seeking to the global vanguard of thin film power generation corporation, Hanergy Thin Film Power Group has also undergone the dramatic and rapid changes happened in the thin film industry of recent years. The Hanergy Thin Film Power Group believes that the corporation can be boosted greatly through combining the advanced technology and the scale production. For this reason, Hanergy Thin Film Power Group has devoted abundant resources to exploring the most promising technology in the thin film power generation industry. The product performance shall be elevated, and the group shall be more competitive in the market through strategic acquisition and the independent research and development. Prospectively, Hanergy Thin Film Power Group shall carry out the strategy stressing the equal importance on product, channel and brand. The product shall be oriented primarily for civil use and for industrial use secondarily. The superiority of existing resource and the enhanced core technology shall be integrated. Based on these preparations, this corporation shall be committed to develop the application products for civil use.

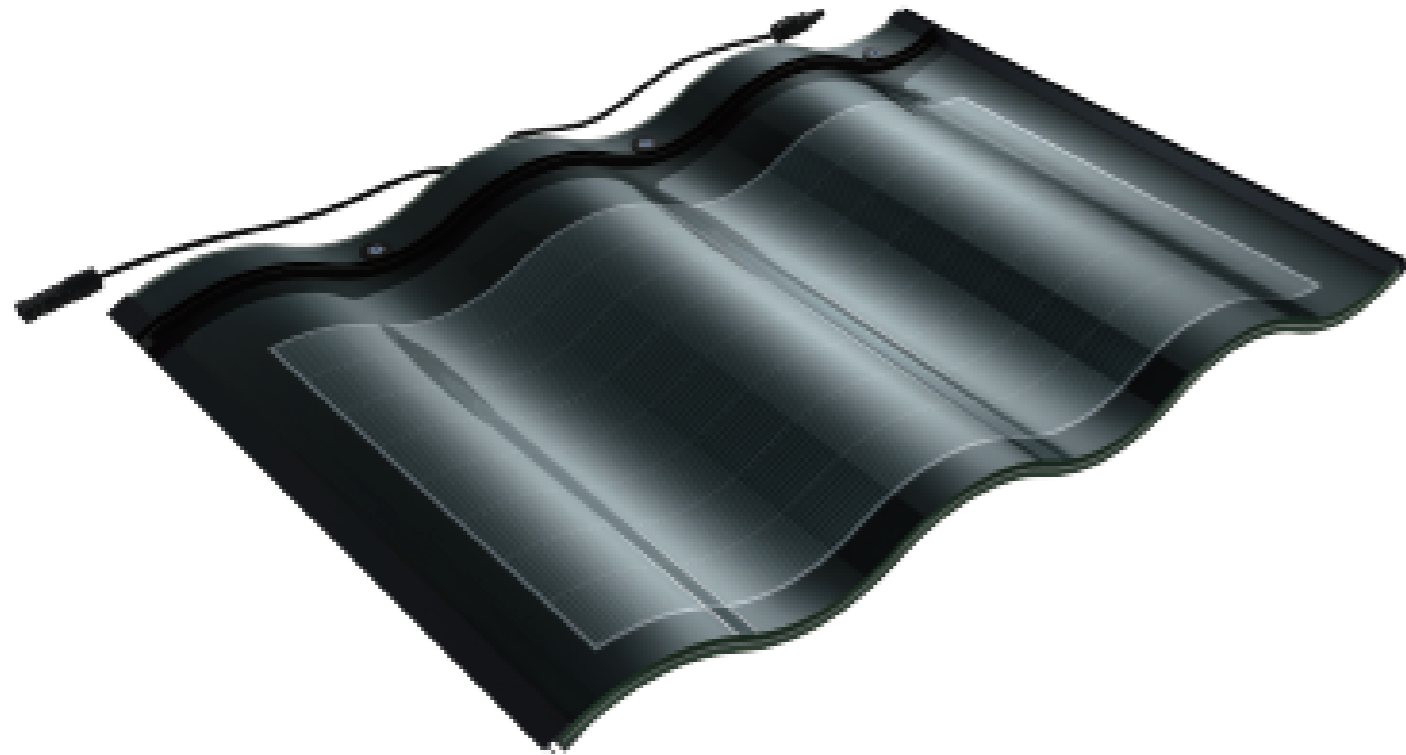
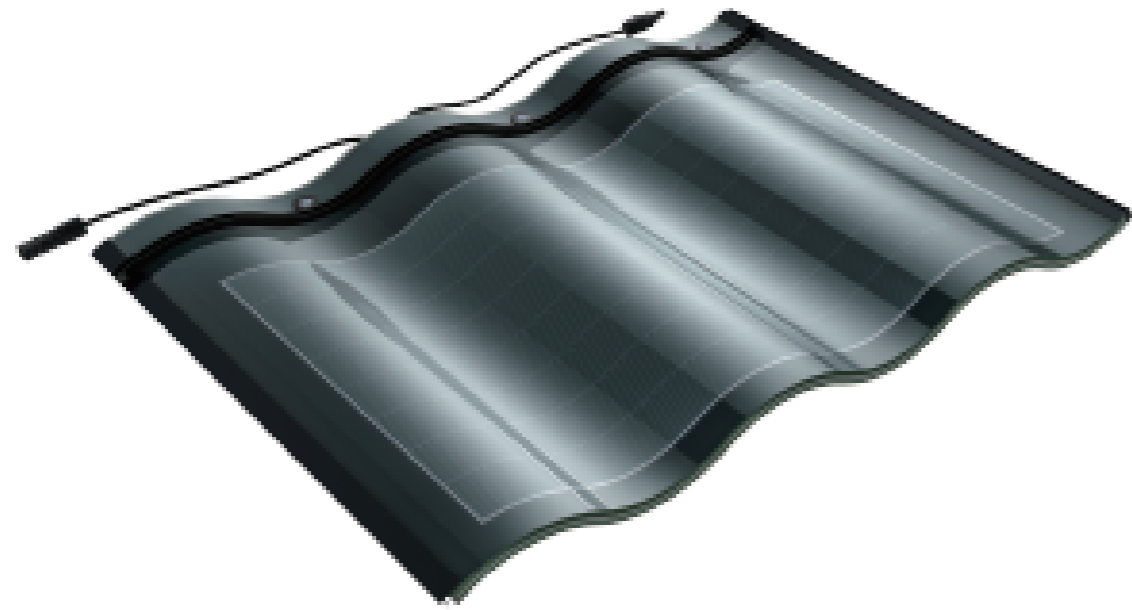
Hantile endows construction with new life

202 BC, the tiles on the roof of Weiyang palace had witnessed the preliminary achievement of Chinese construction and imperial glory. The situation on the roofing tiles has been fluctuated, and the old regime has been repeatedly substituted by the new.

Under the roofing tiles, the human civilization has stepped forward progressively. Hantile has overturned the thousand-year passivity of tile and endowed the construction with more possibilities.

In virtue of Hantile, the construction is no longer dependent on the external energy and the zero energy consumption buildings turn out to be possible.





Meisu series

Meisu series products further bespeak the superiority of Hanergy's chip technology characterized by light quality and flexibility. The Chinese style architectural aesthetics and the special triple-arched design matched with the colors of grey and black supplement with each other, providing multiple architectural combination schemes for the users.

Physical parameters

Product model	HW-MQSB-V1、 HW-MQSG-V1	Color	black and grey
Length	709 (±1) mm	Junction box	39*46*16.6mm IP67
Width	500 (±1) mm	Cable type	2.5mm Solar energy cable; 450(+10/-0)mm
Height	41 (±1) mm	Cable connecter	MC4
Weight	10 (±0.5) Kg		

Electrical property parameters

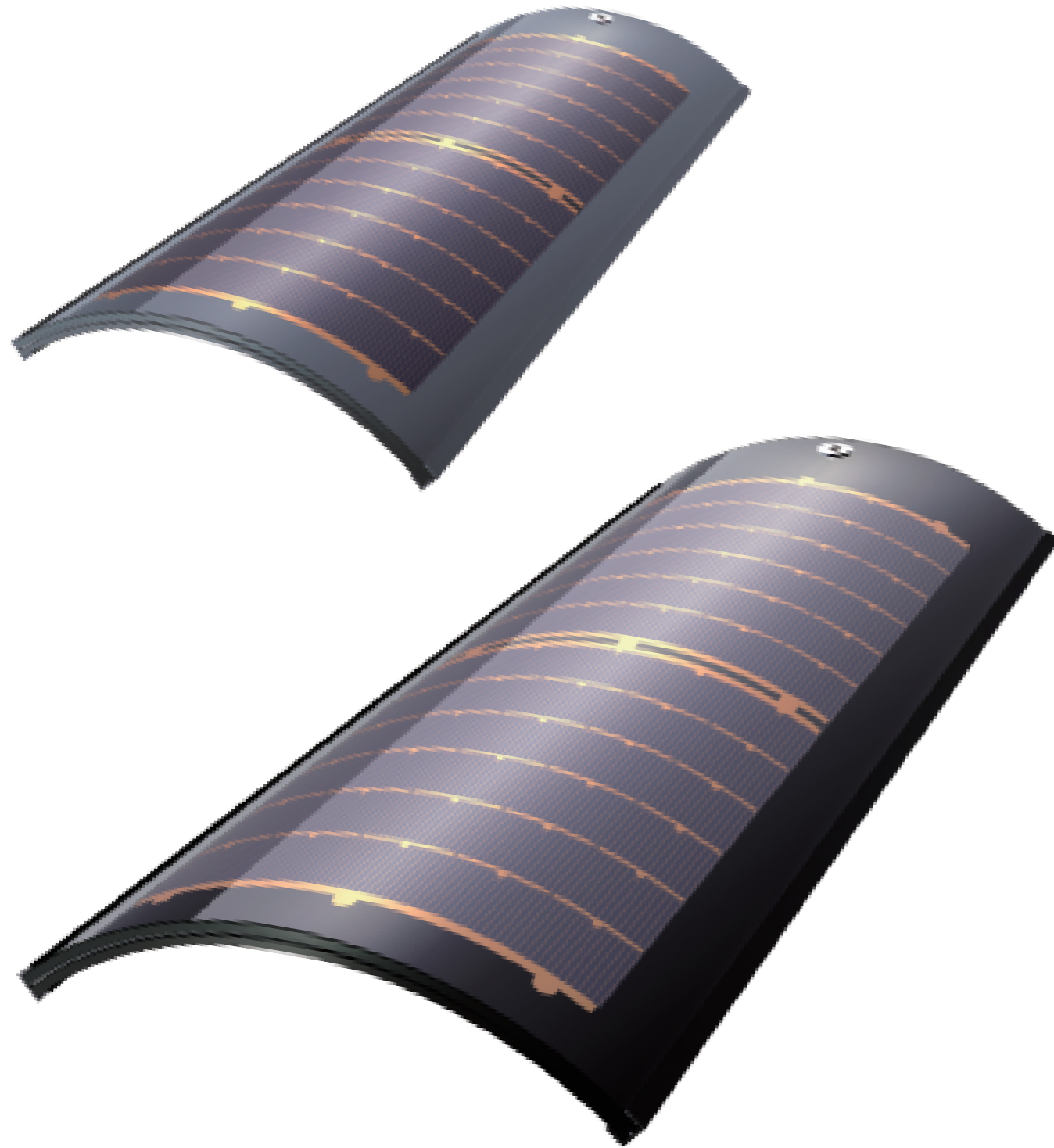
Core type	CIGS	Open-circuit voltage	10.6V
Power	30W	Current under PMPP	3.5A
Short-circuit current	4A	Voltage under PMPP	8.6V

Performance rate

Loading rate	2400 Pa	Fireproofing rate	A
Water proofing rate	IP67	Operating temperature	>40°C to +85°C
Anti-hail rate	4 (ANSI FM 4473)	Operating humidity	0*80%

Qualification and certification

3C/CQC/ISO9001/Rohs(being applied)/UL(being applied)



Gaosu series

The single-arched design of Gaosu series indicates the features of Chinese classical garden. Users are able to stay peacefully and enjoy the sense of being slow and steady between the white wall and black tile in the noise of urbanism.

Physical parameters

Product model	HW-GQSB-V1、HW-GQSG-V1	Color	black and grey
Length	263'293 (±1) mm	Junction box	39*46*16.6mm IP67
Width	715 (±1) mm	Cable type	2.5mm Solar energy cable; 450(+10/-0)mm
Height	68'75 (±1) mm	Cable connector	MC4
Weight	5.8 (±0.5) Kg		

Electrical property parameters

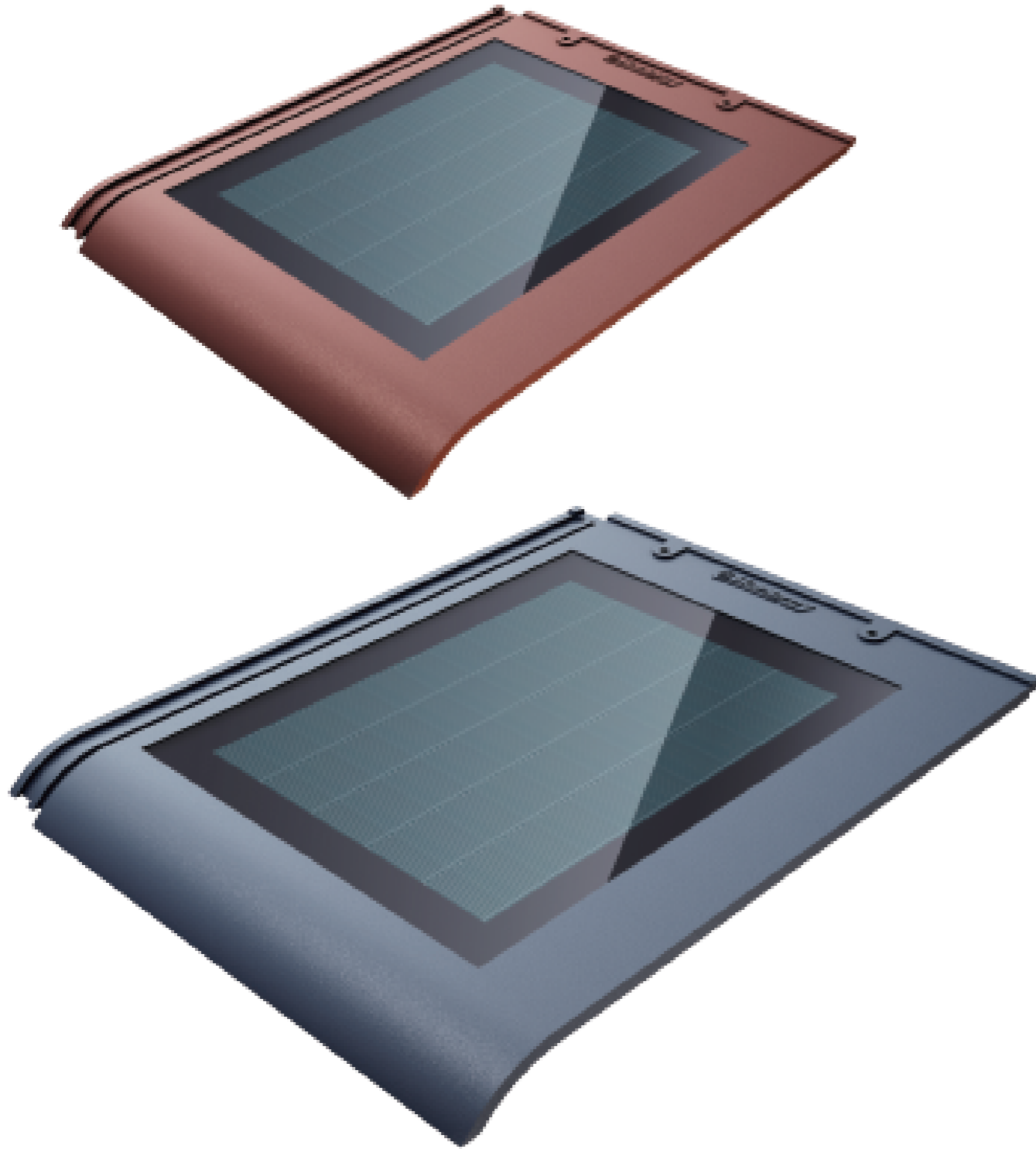
Cell type	CIGS	Open-circuit voltage	7.8v
Power	13.4W	Current under PMPP	2.5A
Short-circuit current	2.7A	Voltage under PMPP	5.4V

Performance rate

Loading rate	2400 Pa	Fireproofing rate	A
Water proofing rate	IP67	Operating temperature	>40°C to +85°C
Anti-hail rate	4 (ANSI FM 4473)	Operating humidity	0*80%

Qualification and certification

3C/CQC/ISO9001/Rohs(being applied)/UL(being applied)



Pinsu series

Pinsu series has the smooth and bright appearance. The simple and general line design can be well geared into the color set of caesious and erythrine, manifesting the fashion of construction.

Physical parameters

Product model	HW-MPSB-V1、 HW-MPSG-V1	Color	caesious and erythrine
Length	491 (±1) mm	Junction box	PV-BN221 IP67
Width	367 (±1) mm	Cable type	PV1-F-1x2.5mm ²
Height	37 (±1) mm	Cable connector	MC4
Weight	1.61 (±0.5) Kg		

Electrical property parameters

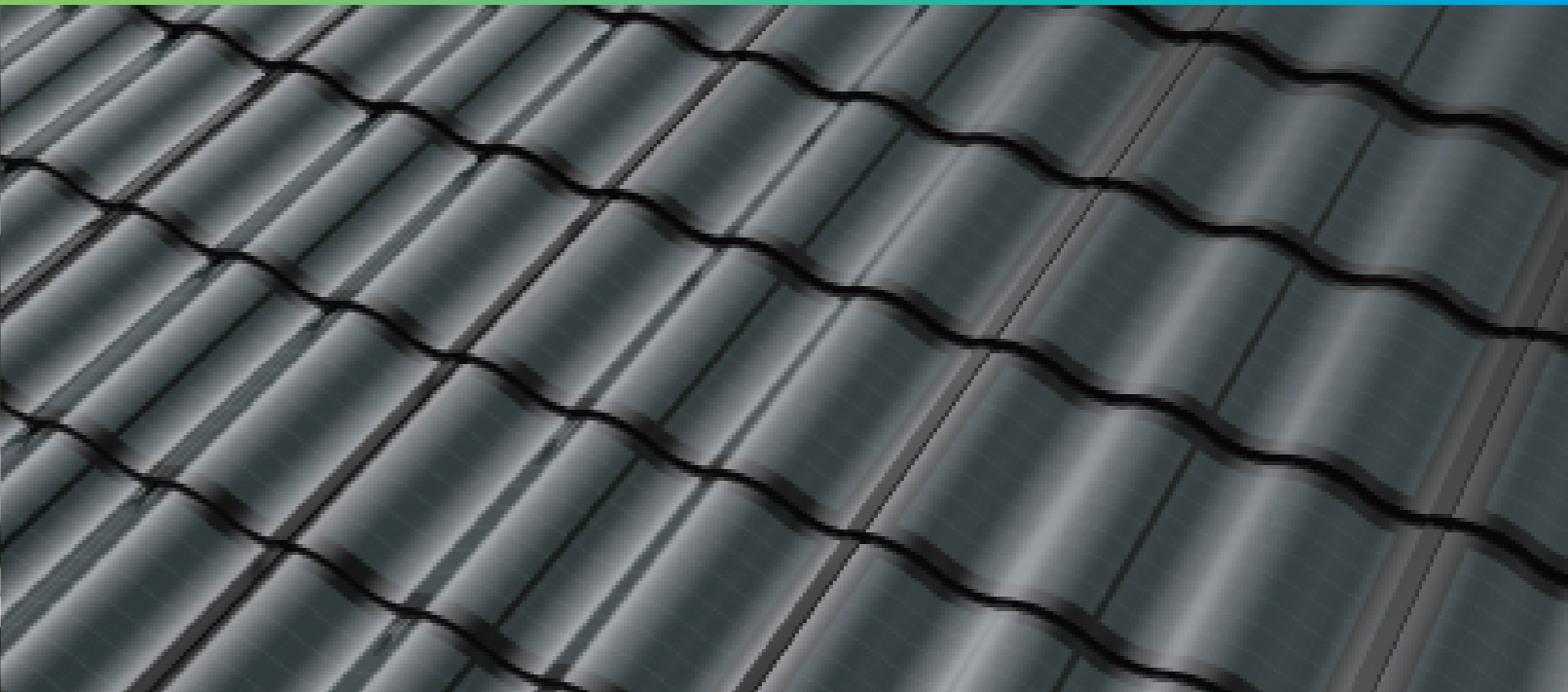
Core type	CIGS	Open-circuit voltage	4V
Power	12W	Current under PMPP	3.7A
Short-circuit current	4.2A	Voltage under PMPP	3.3V

Performance rate

Loading rate	2400 Pa	Fireproofing rate	A
Water proofing rate	IP67	Operating temperature	>40°C to +85°C
Anti-hail rate	4 (ANSI FM 4473)	Operating humidity	0*80%

Qualification and certification

3C/CQC/ISO9001/Rohs(being applied)/UL(being applied)



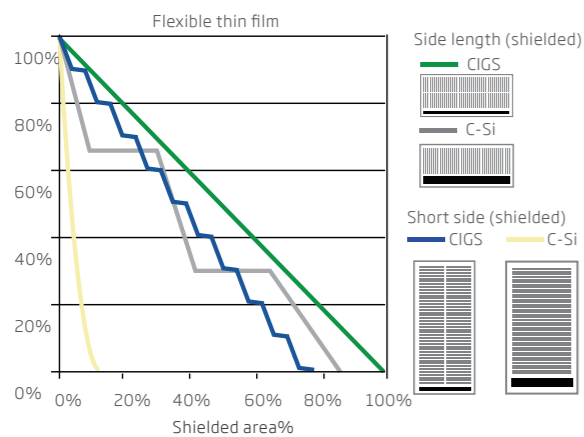
Globally leading thin film solar technology



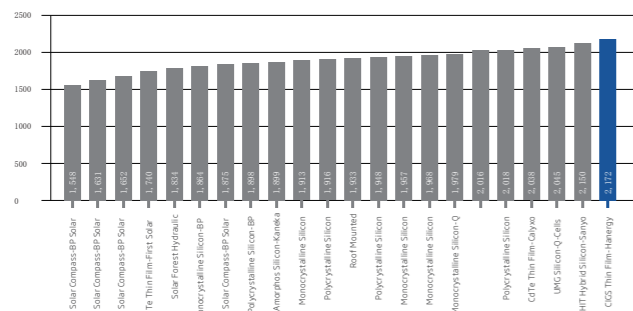
Miasole Corporation is located at the core of Silicon Valley in America. It is the subsidiary wholly owned by Hanergy Holding Group Limited. The unbreakable vacuum successive sputtering technology, is deemed as the top flexible CIGS sputtering method globally. Such chips are adopted in Meisu and Pinsu series of Hantile products.



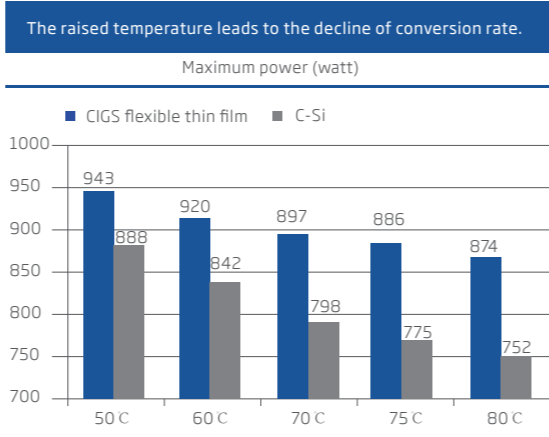
Global Solar is the subsidiary wholly owned by Hanergy Holding Group Limited, located at the Tucson, Arizona of America. The roll-to-roll flexible CIGS co-evaporation manufacturing technique is adopted. This corporation stands top at the technical route of flexible CIGS co-evaporation. Such chips are adopted in Gaosu series of Hantile.



The electricity generation performance remains remarkable when the bypass diode set between two battery slices of every flexible thin film module is shielded.



Under the condition of scattering, (the weather condition in the morning, evening and cloudy condition), the thin film module is more advantageous.



The operating temperature of module is basically larger than the standard test temperature 25°C (a data possibly reaching 60°C in summer). The flexible thin film module is low in temperature coefficient and prominent in high temperature performance.



So far, Hanergy has acquired 1501 patents globally.

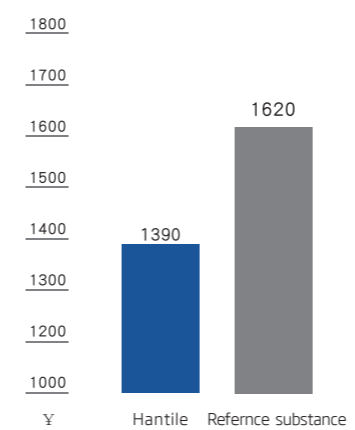
High cost-performance

Hantile power generation return in 30 years

For Meisu series product of Hantile:

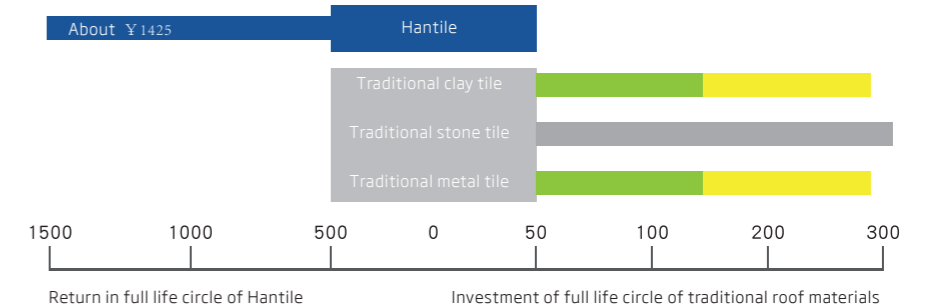
The power of Hantile reaches 85w/㎡. In Beijing, the total power generation reaches 1200h per year. Accordingly, Hantile is able to yearly generate 102kwh/㎡. Abiding by the national subsidy of electricity, ¥0.42 /kwh (exclusive of local subsidy), and electricity charge, ¥0.5/kwh (exclusive of step tariff), the return of 30-year electricity generation of Hantile goes like: 85W*1 200h*(¥0.42+¥0.5) *30 years= ¥2815 which is the double of the initial investment amount.

Price comparison between Hantile and other competitive products



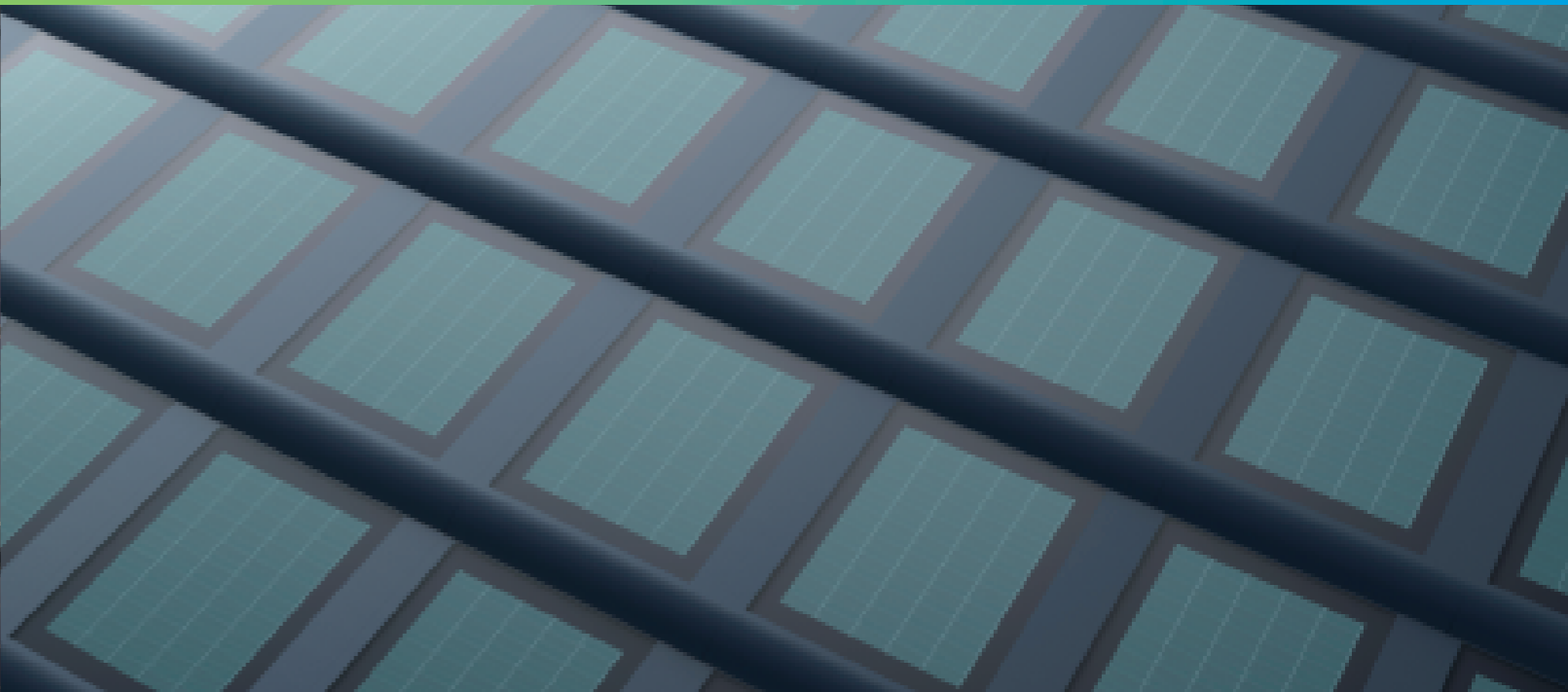
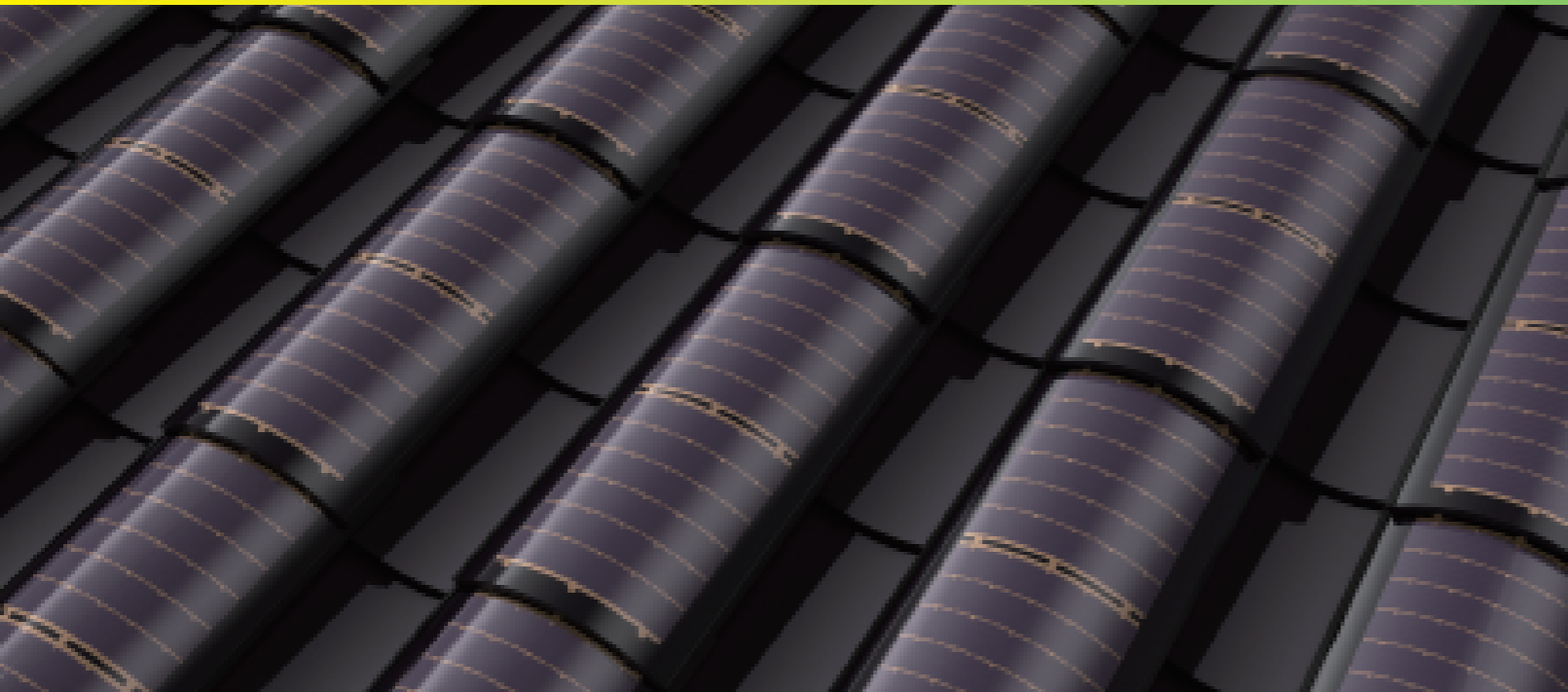
The price/㎡ of Hantile is 16% lower than that of other competitive products.

Return-investment-ratio between Hantile and traditional roof materials



Compared with the traditional roof materials, the service life of Hantile is two or three times as long as the service life of traditional roof materials(20 years). Hantile provides the lifetime warranty service, which means the users shall not change the tile in within the fully service life of roof. Hence, the Hantile's use value is further elevated.

During the service life of roof as Hantile is invested, the preliminary cost of installing the Hantile can be returned, and ¥1425/㎡ shall be returned additionally.



Professional electrical system

Professional electrical design

The design experts of Hanergy are able to provide the customized electrical design service for customers, as to meet the architectural style requirements of different customers.

High-efficient system modules

MC4 connector: The high-quality reliable MC4 connector is adopted, providing the rapid, safe and reliable connection for Hantile module.

Nominal voltage	1000VDC
Safety level	ClassII
Protection level	IP67
Contact resistance	≤5mΩ
Insulating material	PC/PA
Environment temperature	-40 ~ +85℃
Flame resistance rate	UL94-V0

Inverter: The thin film exclusive high-efficient inverter is customized through cooperating with the best brand supplier of the industry.

Maximum DC input power	5500W
Maximum DC input voltage	600V
Starting voltage	150V
MPPT operating voltage range	120V-600V
Maximum DC input current	24A
MPPT efficiency	99.5%
National certification	UCE, VDE0126-1-1, IEC62109, GB3, SAA, CQC

Debugging and Acceptance inspection

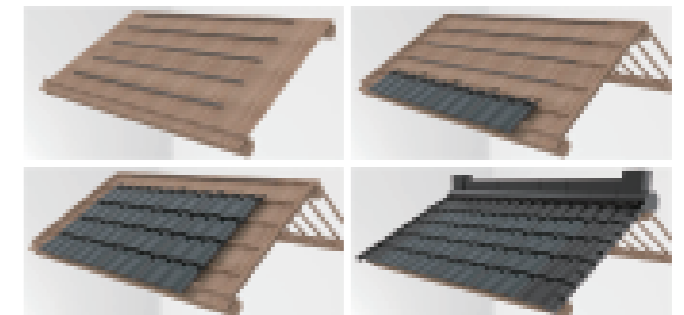
As the installation is completely fulfilled, the professional personnel authorized by Hanergy shall debug the power generation system and carry out the complete and rigorous work acceptance inspection for the customers.

Easy grid connection

Based on the matured channel and the professional dealer team of Hanergy, the customer shall be assisted to make the grid connection procedure.

Convenient installation and prominent waterproofing capability

At the initial phase of design, we used the extremely concise product structure and the convenient installation method.

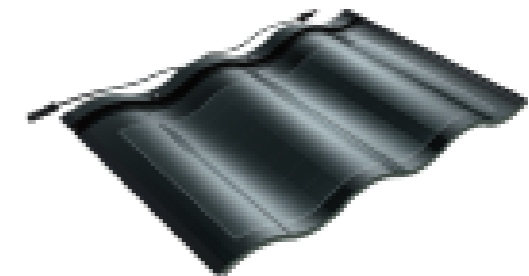


Convenient installation

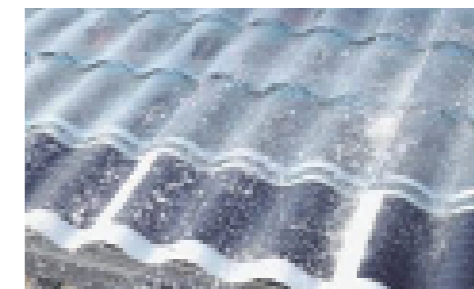
In the practical installation process, a set of 5kw Hantile product shall be completely installed by four workers in four hours.

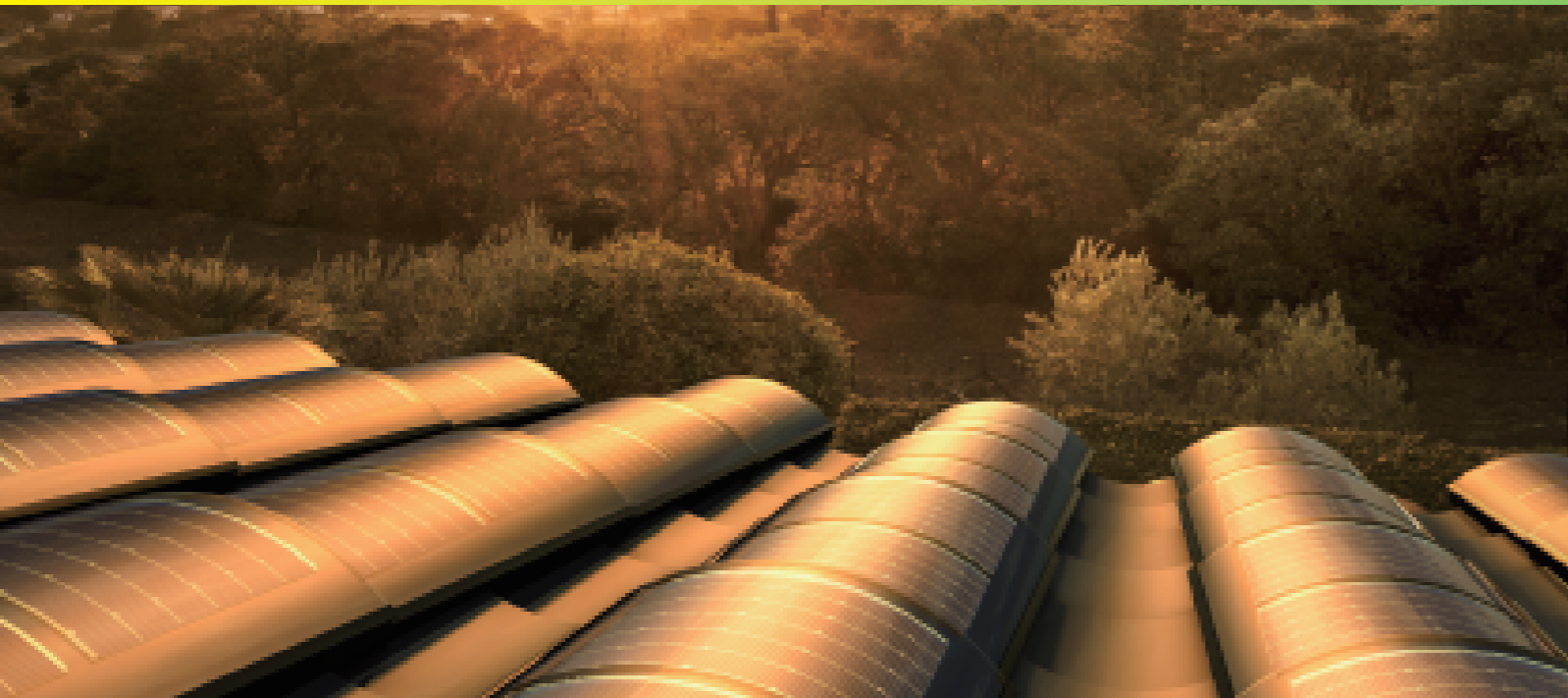
Prominent waterproofing capability

Hantile has the reliable waterproofing and ventilating structures which are excellent in performance and long in service life.



During the spraying test, the multi-dimension, strong wind and waterproofing tests are carried out. We even spray water reversely under the tile. The water-proofing effect remains reliable.





Lifetime warranty

Hanergy provides the lifetime warranty service for Hantile products and the lifetime maintenance service for the supporting equipment.

Tile

For quality problems of tile, Hanergy can replace or maintain the product freely during service life.

Inverter

Hanergy guarantees the repair in 5 years for the supported inverters. During this period, Hanergy guarantees the free repair for inverter with relevant defects of problems. For inverter with the failure repeated for over three times, Hanergy shall provide you the brand-new inverter for free.

Other modules and supporting materials

For the modules and supporting materials provided by Hanergy, Hanergy shall guarantee the repair abiding by the manufacturer's standard.

PICC product liability insurance and product certification



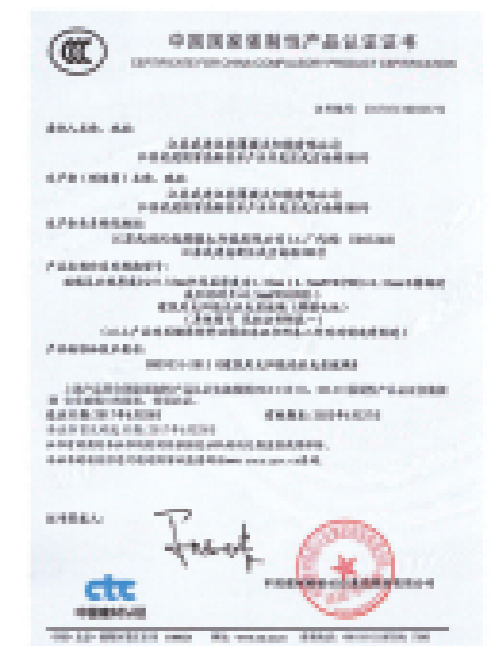
The product liability insurance of all series of Hantile shall be assumed by PICC. Hantile's customers are guaranteed and protected.

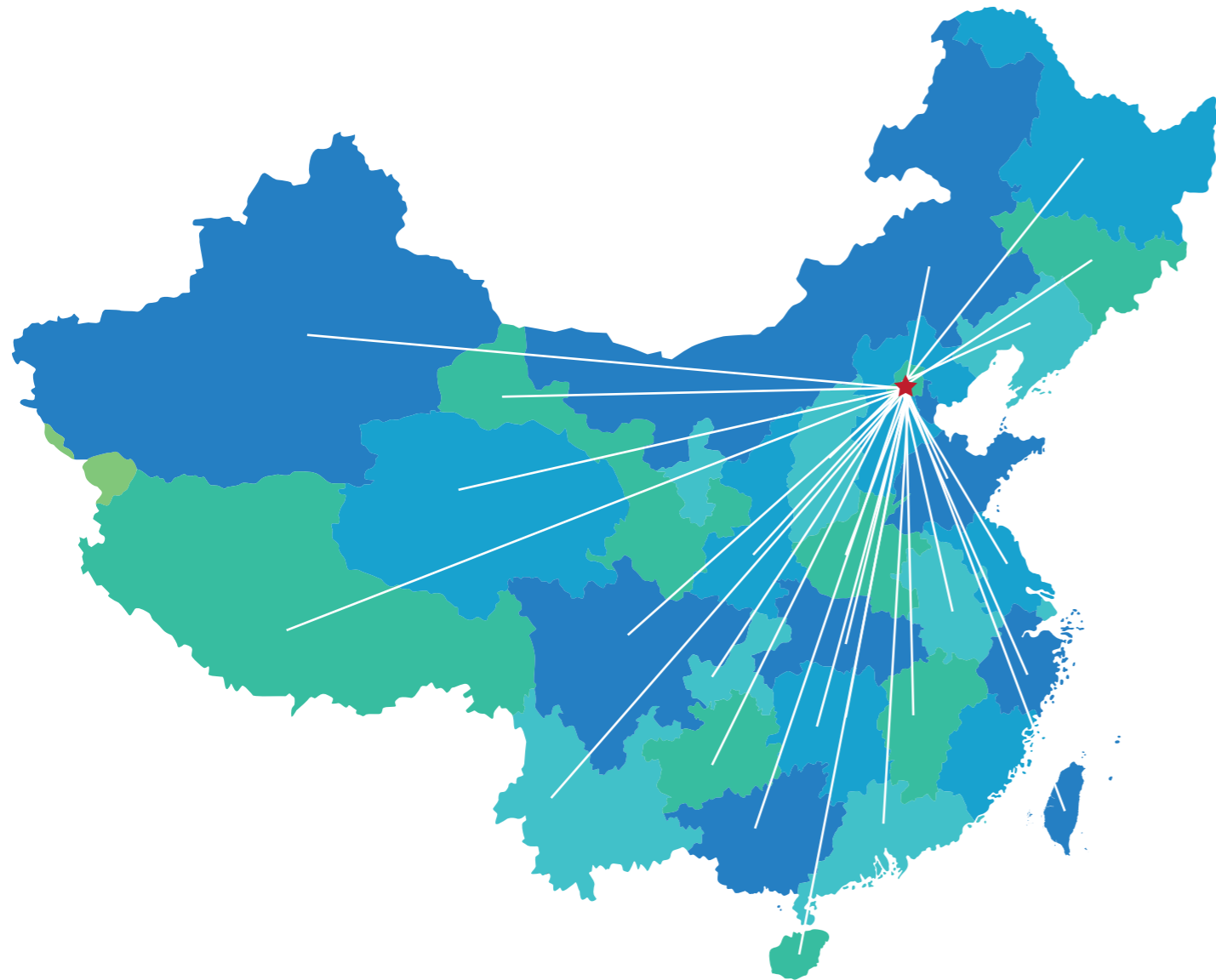


Hantile has been certified by China Compulsory Certification.





The quality of Hantile has been certified by China Quality Certification Centre.







After-sales service system spreading all over the China

 300 prefectural-level service agencies and 1500 county-level service networks have been overall arranged by Hanergy in China. 90% of the areas above the county level are covered.

 Hanergy hereby guarantees the 7*14 hours hotline, 4 hours response and 24h door-to-door service.

 Standard data collector for all product series of Hantile, based on the data platform, the service system of Hanergy shall proactively maintain the operating deviation for customers.

 National hotline: 400-688-1566