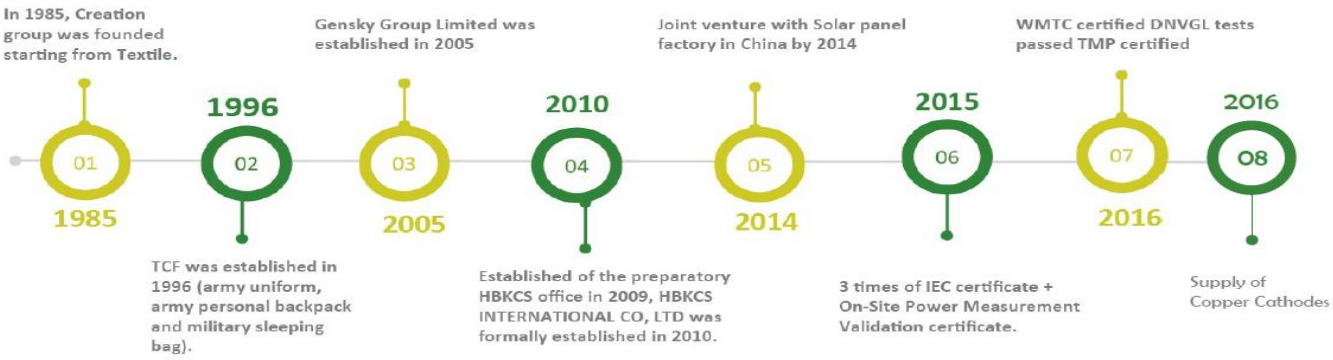
A supplier and manufacturing of

the solar led streetlights and solar panels

HBKCS

www.hbkcs-solar.com

Milestone



33 years proven business since 1985

Diversified business scopes since 1985, materials for army uniform, military sleeping bag, electric components, LED street light, solar LED street light, solar cell, solar panel and integration business (turnkey solution) in green energy field, optical fiber installation, training gun/antiriot gun, BOT Project of Ferry port, and Road construction.

- HBKCS has started launching the led streetlights and has provided solar panels and turnkey solutions of solar power plants for new generation clean, green solar energy since 2008. HBKCS was then formally established in 2010 with a healthy financial status and manufacturing of the led streetlights and solar panels.

- In 2014 joined verdure with solar panel factory in China. HBKCS obtained 3 times IEC test report and on site output measurement certification.

- We aim to develop a carbon free solar energy generation and reduced CO2 emission world.

- Hope the diversification of our company with the excellent experience can bring the customers satisfaction, we are looking for opportunities to provide our quality products with good service to create better future.

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ENERGY CRISES

The world is in grip of threefold crisis i.e. Food-insecurity, Energy and Climate change. These interconnected problems are challenging the financial viability of states and their systems. Although there are no simple solutions to complex issues but it demands Innovative and Sustainable approaches in using our natural resources, particularly Green Energy technologies. We in HBKCS believe that inexhaustible solar energy, its flexible applications, growing technology and reaching almost cost parity, offers the effective sustainable solution to the global crises.

While it is important to increase the energy generation, it's equally important to conserve /reduce consumption using Smart LED / Solid State Lighting Technology to achieve balance in Demand and Supply Situation over long term.

To provide clean, sustainable power utilizing the abundant solar energy of the sun and reduce power consumption using smart LED Lighting Technology, we are committed to bringing back balance to our environment for our future generations.

OUR VISION

Our comprehensive Management Program in collaboration with other solar / LED manufacturers allows us to deliver the value-added chain of solar solutions from standalone residential to more complex factory roof top and grid tied power plants around the globe. Our LED products for public and commercial areas are guaranteed to save huge electricity maintaining their quality over the full life. Total solution in one window – we design simple, high performance and cost effective solutions combining latest technology on the basis of thoroughly evaluated Solar Resource. We prefer turnkey solutions for projects and build capacity of our clients offering complete life cycle services and logistical support (O&M).

BRIEF OVERVIEW

- HBKCS is a multinational green company.
- Started launching the solar led streetlights since 2006 and solar panels and turnkey solutions for power plants since 2009.
- HBKCS was then formally established in 2010 with a healthy financial status
- A supplier and manufacturing of the solar led streetlights and solar panels.
- We provide complete turn-key solutions for new generation clean, green solar energy.
- We aim to develop a carbon free solar energy generation and reduced CO2 emission world.

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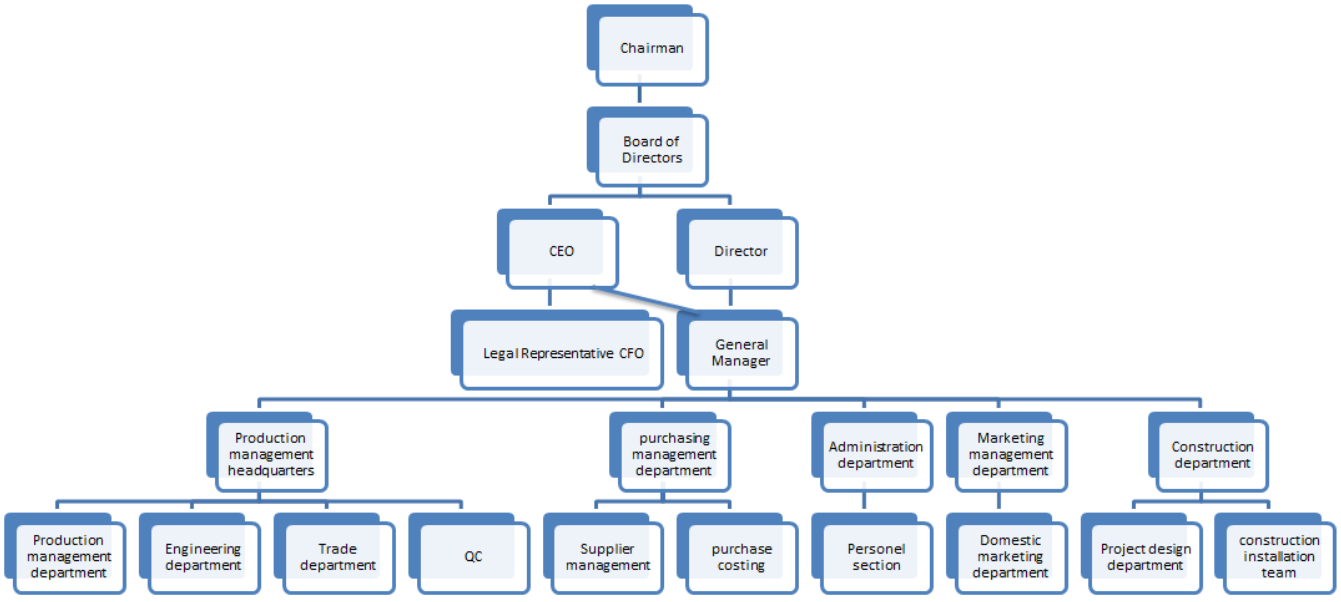
Shift the Future

"HBKCS, is aiming to be the world-class professional provider of fully integrated solar energy solutions."

OUR TEAM

The environmentally conscious team of HBKCS includes highly skilled and motivated individuals who believe in green revolution. Everyone at HBKCS, from engineers and technicians to sales professionals, is passionate about clean energy and values quality, efficiency and customer satisfaction. Our experience brings knowledge of a wide range of projects and services to realization. The core management team is formed of individuals from diverse backgrounds with rich experience in large-scale manufacturing and sales.

ORGANIZATION CHART



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HBKCS 5PS STRATEGY

Partner

Close partnerships with global leading equipment suppliers

Professional Solutions

Professional complete turnkey solutions

Performance

ISO, CE and UL Certified integrator manufacturer of the cutting edge technology

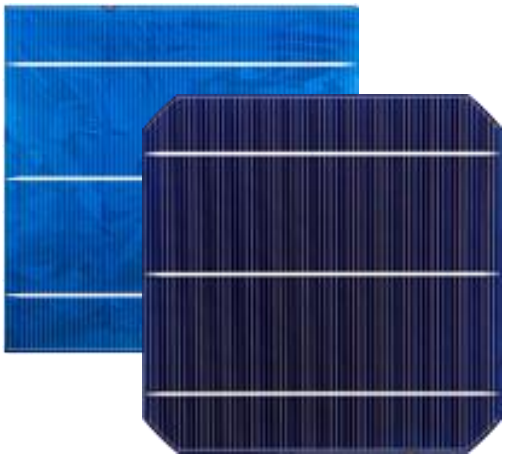
Product Quality

High quality product of outstanding performance

Projects

Rich experience of On-Grid\Off-Grid power plants

CAPACITY AND CAPABILITY



300MW

Annual output on HBKCS cell

1.9GW

Annual output on HBKCS panel

OUR GUARANTEE

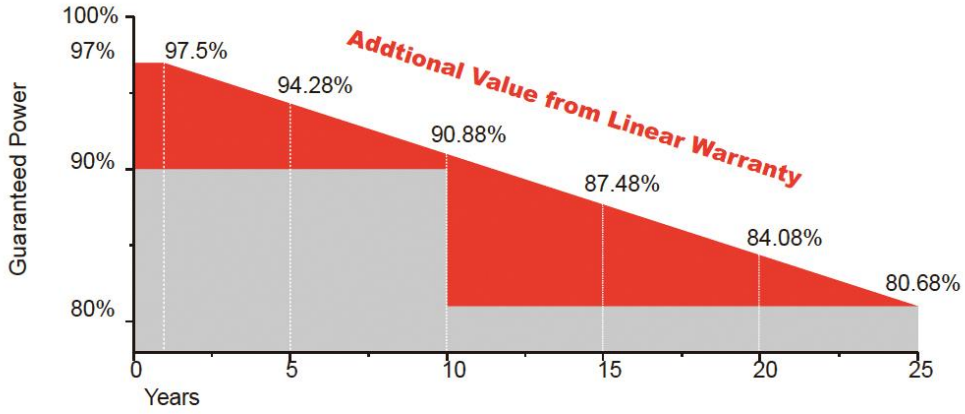
Good customer service is just as important as supplying good quality products. Our goal is to provide excellent service to solve our customers' problems, not only limited to warranty but also EPC and project financing.

HBKCS provides 24 hour a day, 7 day a week service.
Professional feedback will be given within 48 hours after consulting.

10-year warranty on material and workmanship
25-year linear warranty on peak power output

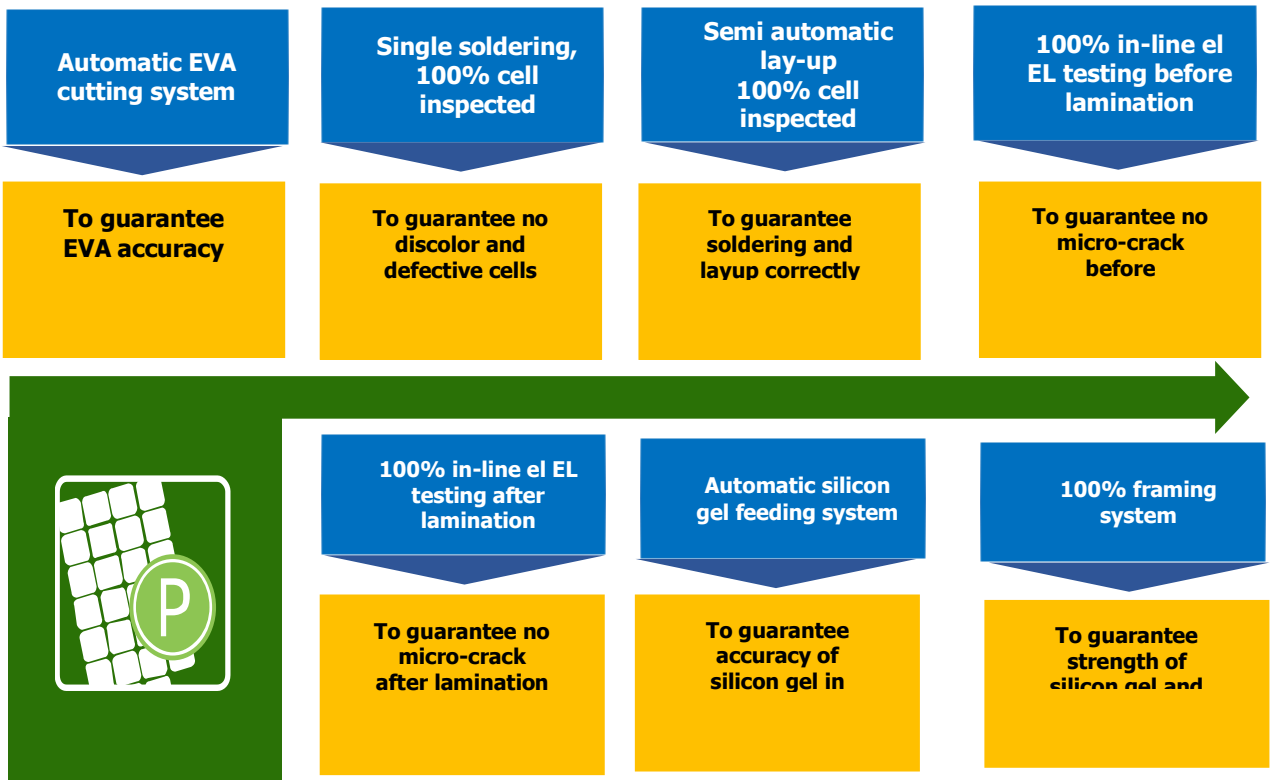
Powerguard covers our PV Modules against product defects and performance.

Integrate resources between developers/financial bodies/ EPC partners



PowerGuard SPECIALTY INSURANCE SERVICES
CHUBB
SOLAR

HBKCS
www.hbkcs-solar.com


Automatic EVA cutting system
To guarantee EVA accuracy
Single soldering, 100% cell inspected
To guarantee no discolor and defective cells
Semi automatic lay-up 100% cell inspected
To guarantee soldering and layup correctly
100% in-line el EL testing before lamination
To guarantee no micro-crack before
P
100% in-line el EL testing after lamination
To guarantee no micro-crack after lamination
Automatic silicon gel feeding system
To guarantee accuracy of silicon gel in
100% framing system
To guarantee strength of

ADVANCED FACILITY

Adopt automatic machines to conduct module production

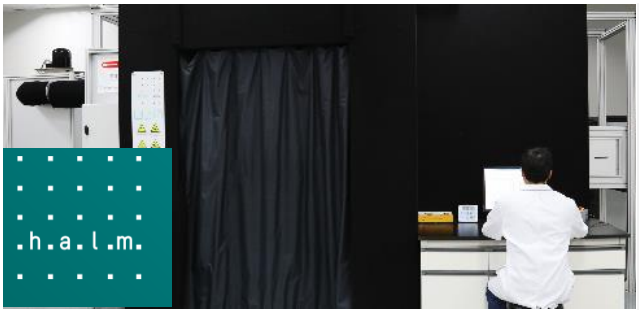
- New soldering machine
- High Speed soldering
- 1,200pcs/hour in 2014

utomatic soldering machine
Manufacturer: Boost Solar Co., Ltd.)

World-class R&D Facility

Lab Accredited By CSA Group and TUV SUD

- Save time and cost on certification process
- Accelerate new product development speed
- Response fast towards market initiatives
- Lower the R&D cost
- Make our test results reliable



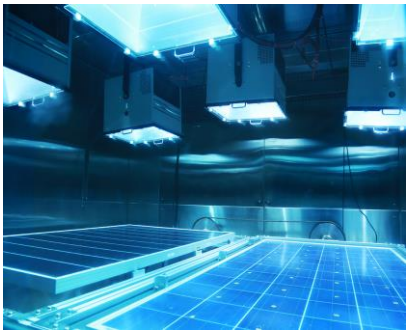
A+A+A+ rated H.A.L.M. sun simulator

A+A+A+ rated H.A.L.M solar simulator which has a high-precision manual testing system for IV measurement of solar modules. It has been specially developed for our R&D and quality control use.

VOTSCH Walk-in Climate Simulation Chamber

VOTSCH customized climate simulation chamber is designed in Germany, using environmental-friendly materials. This high reliability chamber allows us to do Thermal Cycling test, Humidity Freeze test, Damp Heat test, and etc.

ATLAS
MATERIAL TESTING SOLUTIONS



ATLAS UVTest® Fluorescent / UV Instrument

The innovative design is a new, higher standard in terms of features, ease-of-use, accuracy and safety as compared to competitive fluorescent UV devices.

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Complete Quality Control Tests

Quality control testing allows customers to have a clear understanding of the product's property. All data can be used to guide customers on field application. Products fail to meet the standards still can provide valid information for future product optimization. The quality control tests can be divided into three categories shown below. Testing standards refers to IEC61215, IEC61730, UL1703.

◆ Performance Testing

The performance testing is the most basic and most important test. An in-depth understanding of modules enables customers to install solar modules properly.

◆ Safety Testing

The safety testing ensures personal safety during product installation and operation. Guarantees reliable electrical and mechanical performance of products.

◆ Environmental Testing

Environmental testing simulates the effect of the outdoor environment on the performance of the modules, and ensures the functional reliability of the product.

Systemized Quality Control

Material Control

- Stringent Supplier Management
- Spot Check Every Feedstock Batch
- Automatic Material Filtration and Sorting
- Proper Storage at Fixed Temperature and Humidity
- Supplier Quality Engineering (SQE)+Incoming-material Quality Assurance (IQA)

Production Control

- 300+ Quality Check Points
- 3 times 100% EL Testing
- In Process Quality Control, Quality Control Plan

After production

Open Box Audit (OBA) Test. We perform an internal post-production audit. All the qualified modules are sent to the warehouse where OBA QC operators will randomly select modules to

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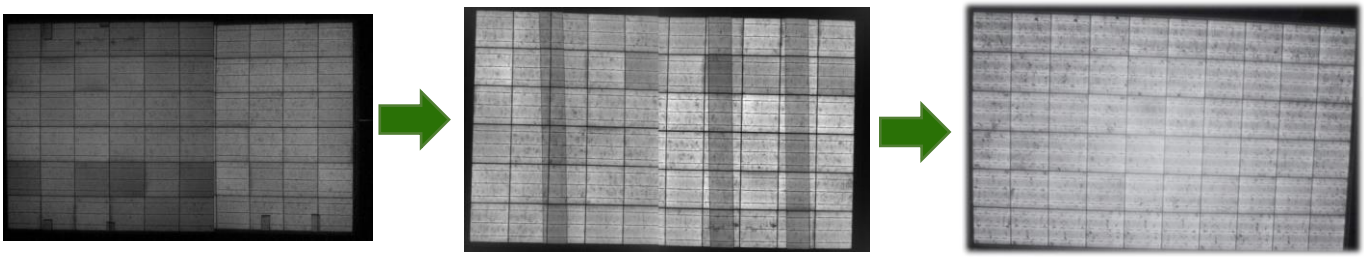
re-perform all the routine test, to ensure the highest quality roducts for our customers, all production is put through our internal OBA.

FACILITY IMPROVEMENT

High-definition EL machine. Micro defect should be checked out.



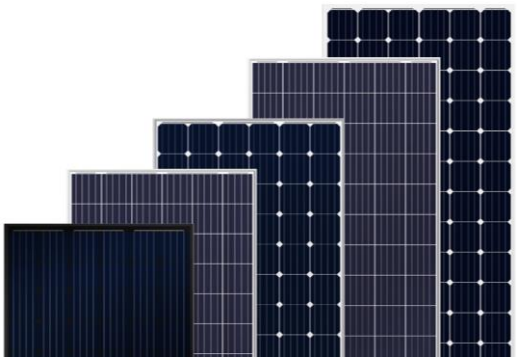
3-megapixels **8-megapixels** **23-megapixels**

PRODUCT FAMILY

We have developed and launched both Monocrystalline and Polycrystalline solar product lines, created innovative products to reduce overall solar system cost for large scale utility projects, and integrated smart technology into products to enhance commercial and residential solar system performance.

Product Structure	
Utility	• HBKCS standard Mono and Poly 72&60 cells module (HB-6MA\HB-6MB & HB-6PA\HB-6PB) • 1500V Module • Eclipse™ • EzBox ™ • Duraflex™ • Double Glass Module
Residential& Commercial	• HBKCS standard Mono and Poly 60 cells module (HB-6MB & HB -6PB) • Polaris™ & Solaris™ AC Solution • Eclipse™ • EzBox ™ • Duraflex™ • Double Glass Module • DC Optimizer Solutions (Tigo's Panel Level or Maxim's Cell String Level)

Standard Mono & Poly Module



More Output, More Returns

- High conversion efficiency
- Positive power tolerance, up to 5W
- More power output capability at low irradiance

More Safety, More Trust

- HBKCS Solar modules passed 20+ global quality certifications
- Highest class of fire resistance
- Better resistance to corrosion, tested by TÜV SÜD

More Reliability and Stability

- Outstanding wind, gale, and snow load durability
- 1st to passed "3 times IEC test report, 3 times more strigent than IEC
- Passed TÜV SÜD PID tests

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Special Designed Module types

Eclipse Module

- 21.2% module efficiency
- 28%+ more output
- Save 15% BOS cost
- Low hot spot effect
- 100% anti-PID
- High reliability and durability
- Marvelous appearance

Ezbox Module

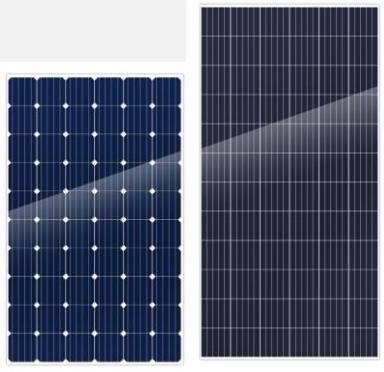
- Optimized module connections
- Reduces installation time and costs
- 3-way design saves on cable and busbar
- Improved safety by avoiding diode heating issue

Duraflex Module

- Bear up to 8000Pa mechanical load
- Flexible installation with either clamps or screws
- Applicable to snowy & windy areas

Double Glass Module

- High fire resistance enhances safety
- Withstand harsh environment
- Excellent reliability, avoids hydrolysis effect and snail trail
- Lower power degradation, more yield, more returns
- 30-year linear power output warranty
- Reduce maintenance cost



MONO-

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CRYSTALLINE

PHOTOVOLTAIC MODULE

Type Of Module	HB-M280B	HB-M285B	HB-M290B	HB-M295B	HB-M300B
Maximum Power [W]	280	285	290	295	300
Tolerance [%]	±5%	±5%	±5%	±5%	±5%
Open circuit Voltage [V]	38.30	38.53	38.59	38.92	38.97
Short circuit Current [A]	9.17	9.41	9.44	9.65	9.68
Maximum Power Voltage [V]	31.64	31.81	31.94	32.21	32.61
Maximum Power Current [A]	8.85	8.96	9.08	9.16	9.20
Module Efficiency [%]	17.21	17.52	17.83	18.13	18.44
Series Fuse Rating [A]	15	15	15	15	15
Terminal Box	IP65	IP65	IP65	IP65	IP65
Maximum System Voltage [V]	DC1000	DC1000	DC1000	DC1000	DC1000
Operating Temperature [°C]	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85

Electric Performance Typical Performance Characteristics	
Short Circuit Current Temperature Coefficient (mA/℃)	+3.60
Open Circuit Voltage Temperature Coefficient (V/℃)	-0.1305
Maximum Power Temperature Coefficient (%/℃)	-0.5358

Performance Warranty

90%output,12Years

80%output, 25 Years

Dimension	
Length	1646mm/64.80in
Width	995mm/39.17in
Depth	50mm/1.97in
Weight	20.0 kg/pcs
Packing	10pcs/1 carton

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SOLAR INVERTORS (HB-E SERIES)

Integrated circuit breaker for DC, AC, DC backup and surge protection on the DC side.

Item / Model		HB-E1000	HB-E1250	HB-E2000	HB-E2500
Nominal AC Power		1000 kW	1260 kW	2000 kW	2520 kW
Maximum AC Power Output		1100 kVA	1386 kVA	2200 kVA	2800 kVA
System	Topology	High Frequency PWM Transformer-less			
DC Input	Rated Voltage	500V			
	Maximum Voltage	1000V			
	Operating Voltage	500V	540V	500V	500V
	Max. Power Point Tracking Range	460-850V			
AC Output	Phase / Wire	1-Phase / 2-Wire or 1-Phase / 3 Wire (LNG)			
	Rated Voltage	315V(252~362 V)			
	Rated Frequency	50 or 60 Hz (45~55Hz or 55~65Hz)			
	Rated Output	2016A	2222A	4032A	5132A
	Current THD	Less Than 3%			
	Power Factor	>0.99			
Efficiency		99%		98.7%	
Protection		Over Voltage, Under Voltage, Over Frequency, Under Frequency			
Islanding Operation		Voltage Phase Jump Detection			
Interface		RS485, Ethernet; Optional: Optical fiber			
Physical	Dimension	2800x2236x1100 (mm)		3291x2591x2438 (mm)	
	Net Weight	2900 (Kg)		6000 (Kg)	
Environment	Operation Temperature	-35°C~60°C			
	Altitude	0~6000M			
	Humidity	0~95%			
Safety Conformance	Quality Assurance	TÜV Certified			

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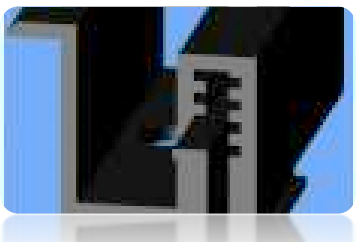
MOUNTING SYSTEM FOR SOLAR PANELS

Leading Manufacturer of Photovoltaic (PV) mounting systems and a variety of structural roof attachments designed for the professional replica watches installer.



HB-I-202B

HB-I-700B

HB-I-500B9

PERFORMANCE: PRODUCT CERTIFICATIONS

- The only TUV certified supplier offering performance guarantee to the customers.
- Panels and inverter are verified by TUV/CE.
- Have passed TUV **"3 times IEC test report"** long-term reliability Certification, based on **3 times** stringent testing standards than regular IEC61215 + IEC61730.

Plant equipment to be supplied for SSPPL project contains the following quality:

Equipment	Standards	Certifications
Solar Modules	IEC 61215, 61730	TUV Certification
Inverters	VDE 0126-1-1 IEC62109-1:2010 ; IEC62109-2:2011 ; IEC62103:2003	CE TUV
Cables	CNS 12681/2655	ISO 9001:2008
DC Junction Box	IEC62109-1 ; IEC61439-1 ; IEC61439-2	TUV
HT/LT Panels	CNS3990/13542, IEC 62271-200/IEC 61439-1	ISO 9001/14001/18001
Transformers	CNS12681/598	ISO 9001:2008
Irradiance Sensors	WMO 2006/95/CEE 93/68/EEC	ISO 9060, CE
Lightning System	NF C17-102	ISO 9001:2000
DC Panel	IEC60947-3	CE

QUALITY ASSURANCE

- Seamless and transparent traceability system, ISO 9001 quality management system.
- Made for reliability, Made for yield, Made for trust, Made for safety

MADE FOR RELIABILITY

World 1st Company

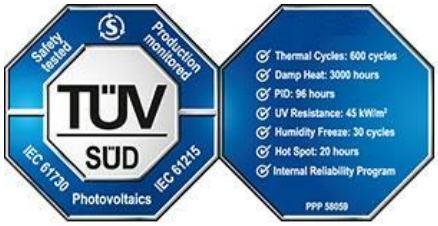
to pass the

"3 times IEC test report"

focus on reliability and performance based on

3 times extended testing criteria,

than regular IEC61215 + IEC61730.



TUV IEC61215 (Other Company)		3 times IEC test report
Thermal cycles 200 cycles(-40 ~80℃)	X3 Times	Thermal cycles 600 cycles (-40 ~80℃)
Damp heat 1000 h (85℃ 85%RH)		Damp heat 3000 h (85℃ 85%RH)
No PID test		PID test for 96h
UV resistance 15 kw/m ㎡		UV resistance 45 kw/m ㎡
Humidity Freeze 10 cycles (-40 ~80℃ 85%RH)		Humidity Freeze 30 cycles (-40 ~80℃ 85%RH)
Hot spot 5h (60kWh/㎡)		Hot spot 20h (60kWh/㎡)

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MADE FOR TRUST

World 1st company that obtain the TÜV SÜD
"On Site Output Measurement" certificate

Power output independently
"On Site Output Measurement" by TÜV SÜD

Periodically assess the Sun simulators in production

Randomly select samples from both production line and warehouse for verification throughout the year

MADE FOR SAFETY

Safety for Salt Moisture Corrosion
(IEC61701, tested in Intertek)

Safety for Ammonia Corrosion
(IEC62716, tested in TÜV SÜD)

Safety for Fire Risk
(Class C, tested in TÜV SÜD and Rheinland)

CERTIFICATION

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

CERTIFICATE

No. Z2 15 07 89437 003

Holder of Certificate: **HBKCS International Co., Ltd.**
Unit 706,Haleson Building
NO.1 Jubilee Street
Hong Kong
HONG KONG

Certification Mark:

Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**
Poly-Crystalline Silicon Photovoltaic Module

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition the certification holder must not transfer the certificate to third parties. See also notes overleaf.

Test report no.: 701261503002-00

Valid until: 2020-07-30

0405276554475

Date, 2015-07-31 (Jianhui Wang)

Page 1 of 2

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

TÜV®

HBKCS
www.hbkcs-solar.com

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

CERTIFICATE
No. Z2 15 07 89437 003

Model(s):

HB-260-6PA, HB-265-6PA, HB-270-6PA, HB-275-6PA, HB-280-6PA, HB-285-6PA, HB-290-6PA, HB-295-6PA, HB-300-6PA, HB-305-6PA, HB-310-6PA, HB-215-6PB, HB-220-6PB, HB-225-6PB, HB-230-6PB, HB-235-6PB, HB-240-6PB, HB-245-6PB, HB-250-6PB, HB-255-6PB, HB-260-6PB.

Parameters:

Rated Output Power at STC:	260 W, 265 W, 270 W, 275 W, 280 W, 285 W, 290 W, 295 W, 300 W, 305 W, 310 W, 215 W, 220 W, 225 W, 230 W, 235 W, 240 W, 245 W, 250 W, 255 W, 260 W.
Application Class:	Class A
Max. System Voltage:	1000V DC
Test Laboratory:	Yangzhou Opto-Electrical Products Testing Institute. No. 10 West Kaifa Road, Yangzhou 225009, Jiangsu, P.R. China.
Construction:	Framed, with Junction box, cable and connector.
Fire Safety Class:	Class C

Tested according to:

IEC 61215(ed.2)
IEC 61730-1(ed.1)
IEC 61730-2(ed.1)
PPP 58059B:2013

Production Facility(ies):

76729

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

TÜV®

A: 104.11

TÜVRheinland

Certificate

Registration No.: PV 50239176 **Page 1** **Report No.: 11020117 007**

License Holder:
HBKCS International Co., Ltd.
Unit 706, Haleson Building,
No.1 Jubilee Street, Hong Kong,
P. R. China

Manufacturing Plant:
0003-11020117 001

Product:
PV Module
Type:
6MN6AXXX (XXX= 220-270, in steps of 5, 60 cells)
6MN69XXX (XXX= 200-245, in steps of 5, 54 cells)
6MN5AXXX (XXX= 185-225, in steps of 5, 50 cells)
6MN68XXX (XXX= 180-215, in steps of 5, 48 cells)
6MN66XXX (XXX= 135-160, in steps of 5, 36 cells)
6MN49XXX (XXX= 135-160, in steps of 5, 36 cells)

Basis:

☒ **IEC 61730-1:2004**
IEC 61730-2:2004
EN 61730-1:2007
EN 61730-2:2007
"Photovoltaic (PV) module safety qualification"

☒ **Factory Inspection**
To document the consistent quality of the product factory inspections are performed periodically.

www.tuv.com TÜVRheinland ID:0000032993

- **Qualified, IEC 61215**
- **Safety tested, IEC 61730**
- **Heavy Snow Load tested**
- **Periodic inspection**

Remarks:
- Mechanical Load test was performed at a load of 5400 Pa.
- Fire Resistance Class C (IEC 61730-2 / MST23)
- IEC EN 61730 consists of part 1 (Requirements for construction) and part 2 (Requirements for testing).
- The above listed PV modules fulfil the requirements of Application Class A (Class II). They may be used in PV plants at a maximum system voltage (Voc at STC) of up to 1000 VDC.

Conditions:
The product test is voluntarily according to technical regulations. Any change of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval.

The certificate is valid until 10 October 2015.

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle TÜVRheinland

Certification body

16. October 2012

Dipl.-Ing. Werner Feuker

TÜV Rheinland LGA Products GmbH, Tillystrasse 2, D-90431 Nürnberg
Contact: (+49) 221 806-1371 email: cert-validity@de.tuv.com

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TÜVRheinland®

Certificate

Registration No.: PV 50239176 **Page 2** **Report No.: 11020117 007**

License Holder:
HBKCS International Co., Ltd.
Unit 706, Haleson Building,
No.1 Jubilee Street, Hong Kong,
P. R. China

Manufacturing Plant:
0003–11020117 001

Product:
PV Module
Type:
6PN6AXXX-xx (XXX= 220-260, in steps of 5, 60 cells)
6PN69XXX-xx (XXX= 200-215, in steps of 5, 54 cells)
6PN68XXX-xx (XXX= 180-195, in steps of 5, 48 cells)
6PN66XXX-xx (XXX= 130-145, in steps of 5, 36 cells)
6PN49XXX-xx (XXX= 130-145, in steps of 5, 36 cells)
(xx=A0, A1, 00 and blank)
6PT6AXXX (XXX= 220-260, in steps of 5, 60 cells)
6PT69XXX (XXX= 200-215, in steps of 5, 54 cells)
6PT68XXX (XXX= 180-195, in steps of 5, 48 cells)
6PT66XXX (XXX= 130-145, in steps of 5, 36 cells)

Basis:

☒ **IEC 61730-1:2004**
IEC 61730-2:2004
EN 61730-1:2007
EN 61730-2:2007
"Photovoltaic (PV) module safety qualification"

☒ **Factory Inspection**
To document the consistent quality of the product factory inspections are performed periodically.

www.tuv.com TÜVRheinland® ID:0000032993

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Remarks:
- Mechanical Load test was performed at a load of 5400 Pa.
- Fire Resistance Class C (IEC 61730-2 / MST23)
- IEC EN 61730 consists of part 1 (Requirements for construction) and part 2 (Requirements for testing).
- The above listed PV modules fulfil the requirements of Application Class A (Class II). They may be used in PV plants at a maximum system voltage (Voc at STC) of up to 1000 VDC.

Conditions:
The product test is voluntarily according to technical regulations. Any change of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval.

The certificate is valid until 10 October 2015.

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle TÜVRheinland®

Certification body

16. October 2012

Dipl.-Ing. Werner Feuker

TÜV Rheinland LGA Products GmbH, Tillystrasse 2, D-90431 Nürnberg
Contact: (+49) 221 806-1371 email: cert-validity@de.tuv.com

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TÜVRheinland®

Certificate

Registration No.: PV 50239175 **Page 1** **Report No.: 11020116 007**

License Holder:
HBKCS International Co., Ltd.
Unit 706, Haleson Building,
No.1 Jubilee Street, Hong Kong,
P. R. China

Manufacturing Plant:
0003--11020116 001

Product:
PV Module
Type:
6MN6AXXX (XXX= 220-270, in steps of 5, 60 cells)
6MN69XXX (XXX= 200-245, in steps of 5, 54 cells)
6MN5AXXX (XXX= 185-225, in steps of 5, 50 cells)
6MN68XXX (XXX= 180-215, in steps of 5, 48 cells)
6MN66XXX (XXX= 135-160, in steps of 5, 36 cells)
6MN49XXX (XXX= 135-160, in steps of 5, 36 cells)

Basis:

☒ **IEC 61215:2005**
EN 61215:2005
"Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval"

☒ **Factory Inspection**
To document the consistent quality of the product factory inspections are performed periodically.

www.tuv.com TÜVRheinland® ID:0000032993

- **Qualified, IEC 61215**
- **Heavy Snow Load tested**
- **Periodic inspection**

Remarks:
- Mechanical Load test was performed at a load of 5400 Pa.

Conditions:
The product test is voluntarily according to technical regulations. Any change of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval.

The certificate is valid until 10 October 2015.

TÜV Rheinland LGA Products GmbH TÜVRheinland® Zertifizierungsstelle

Certification body

16. October 2012

Dipl.-Ing. Werner Feuker

TÜV Rheinland LGA Products GmbH, Tillystrasse 2, D-90431 Nürnberg
Contact: (+49) 221 806-1371 email: cert-validity@de.tuv.com

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TÜVRheinland®

Certificate

Registration No.: PV 50239175 **Page 2** **Report No.: 11020116 007**

License Holder:
HBKCS International Co., Ltd.
Unit 706, Haleson Building,
No.1 Jubilee Street, Hong Kong,
P. R. China

Manufacturing Plant:
0003--11020116 001

Product:
PV Module
Type:
6PN6AXXX-xx (XXX= 220-260, in steps of 5, 60 cells)
6PN69XXX-xx (XXX= 200-215, in steps of 5, 54 cells)
6PN68XXX-xx (XXX= 180-195, in steps of 5, 48 cells)
6PN66XXX-xx (XXX= 130-145, in steps of 5, 36 cells)
6PN49XXX-xx (XXX= 130-145, in steps of 5, 36 cells)
(xx=A0, A1, 00 and blank)
6PT6AXXX (XXX= 220-260, in steps of 5, 60 cells)
6PT69XXX (XXX= 200-215, in steps of 5, 54 cells)
6PT68XXX (XXX= 180-195, in steps of 5, 48 cells)
6PT66XXX (XXX= 130-145, in steps of 5, 36 cells)

Basis:

☒ **IEC 61215:2005**
EN 61215:2005
"Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval"

☒ **Factory Inspection**
To document the consistent quality of the product factory inspections are performed periodically.

www.tuv.com TÜVRheinland® ID:0000032993

- **Qualified, IEC 61215**
- **Heavy Snow Load tested**
- **Periodic inspection**

Remarks:
- Mechanical Load test was performed at a load of 5400 Pa.

Conditions:
The product test is voluntarily according to technical regulations. Any change of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval.

The certificate is valid until 10 October 2015.

TÜV Rheinland LGA Products GmbH TÜVRheinland® Zertifizierungsstelle

Certification body

16. October 2012

Dipl.-Ing. Werner Feuker

TÜV Rheinland LGA Products GmbH, Tillystrasse 2, D-90431 Nürnberg
Contact: (+49) 221 806-1371 email: cert-validity@de.tuv.com

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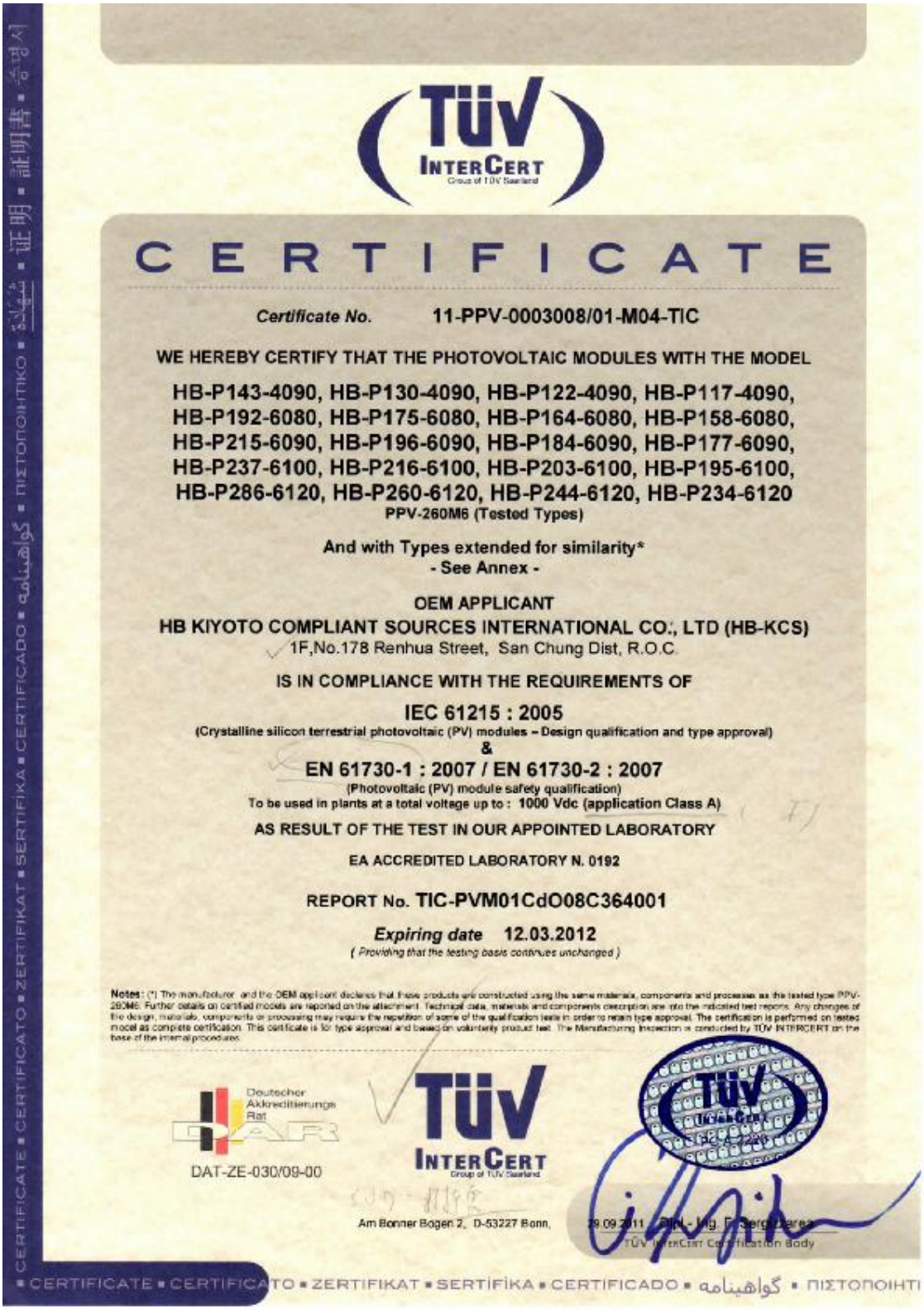

TÜV INTERCERT
Group of TÜV Saarland

CERTIFICATE

Certificate No. **11-PPV-0003008/01-M04-TIC**

WE HEREBY CERTIFY THAT THE PHOTOVOLTAIC MODULES WITH THE MODEL

HB-P143-4090, HB-P130-4090, HB-P122-4090, HB-P117-4090,
HB-P192-6080, HB-P175-6080, HB-P164-6080, HB-P158-6080,
HB-P215-6090, HB-P196-6090, HB-P184-6090, HB-P177-6090,
HB-P237-6100, HB-P216-6100, HB-P203-6100, HB-P195-6100,
HB-P286-6120, HB-P260-6120, HB-P244-6120, HB-P234-6120
PPV-260M6 (Tested Types)

And with Types extended for similarity*
- See Annex -

OEM APPLICANT
HB KIYOTO COMPLIANT SOURCES INTERNATIONAL CO., LTD (HB-KCS)
1F,No.178 Renhua Street, San Chung Dist, R.O.C.

IS IN COMPLIANCE WITH THE REQUIREMENTS OF

IEC 61215 : 2005
(Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval)
&
EN 61730-1 : 2007 / EN 61730-2 : 2007
(Photovoltaic (PV) module safety qualification)
To be used in plants at a total voltage up to : **1000 Vdc (application Class A)**

AS RESULT OF THE TEST IN OUR APPOINTED LABORATORY

EA ACCREDITED LABORATORY N. 0192

REPORT No. TIC-PVM01CdO08C364001

Expiring date **12.03.2012**
(Providing that the testing basis continues unchanged)

Notes: (*) The manufacturer and the OEM applicant declares that these products are constructed using the same materials, components and processes as the tested type PPV-260M6. Further details on certified models are reported on the attachment. Technical data, materials and components description are into the indicated test reports. Any changes of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval. The certification is performed on tested model as complete certification. This certificate is for type approval and based on voluntarily product test. The Manufacturing Inspection is conducted by TÜV INTERCERT on the base of the internal procedures.

Deutscher Akkreditierungs Rat
DAR
DAT-ZE-030/09-00

TÜV INTERCERT
Group of TÜV Saarland

Am Bonner Bogen 2, D-53227 Bonn,

29.09.2011 Dipl.-Ing. F. Sergio Zarea
TÜV INTERCERT Certification Body

CERTIFICATE ■ CERTIFICATO ■ ZERTIFIKAT ■ SERTİFİKA ■ CERTIFICADO ■ گواهینامه ■ ΠΙΣΤΟΠΟΙΗΤΙ

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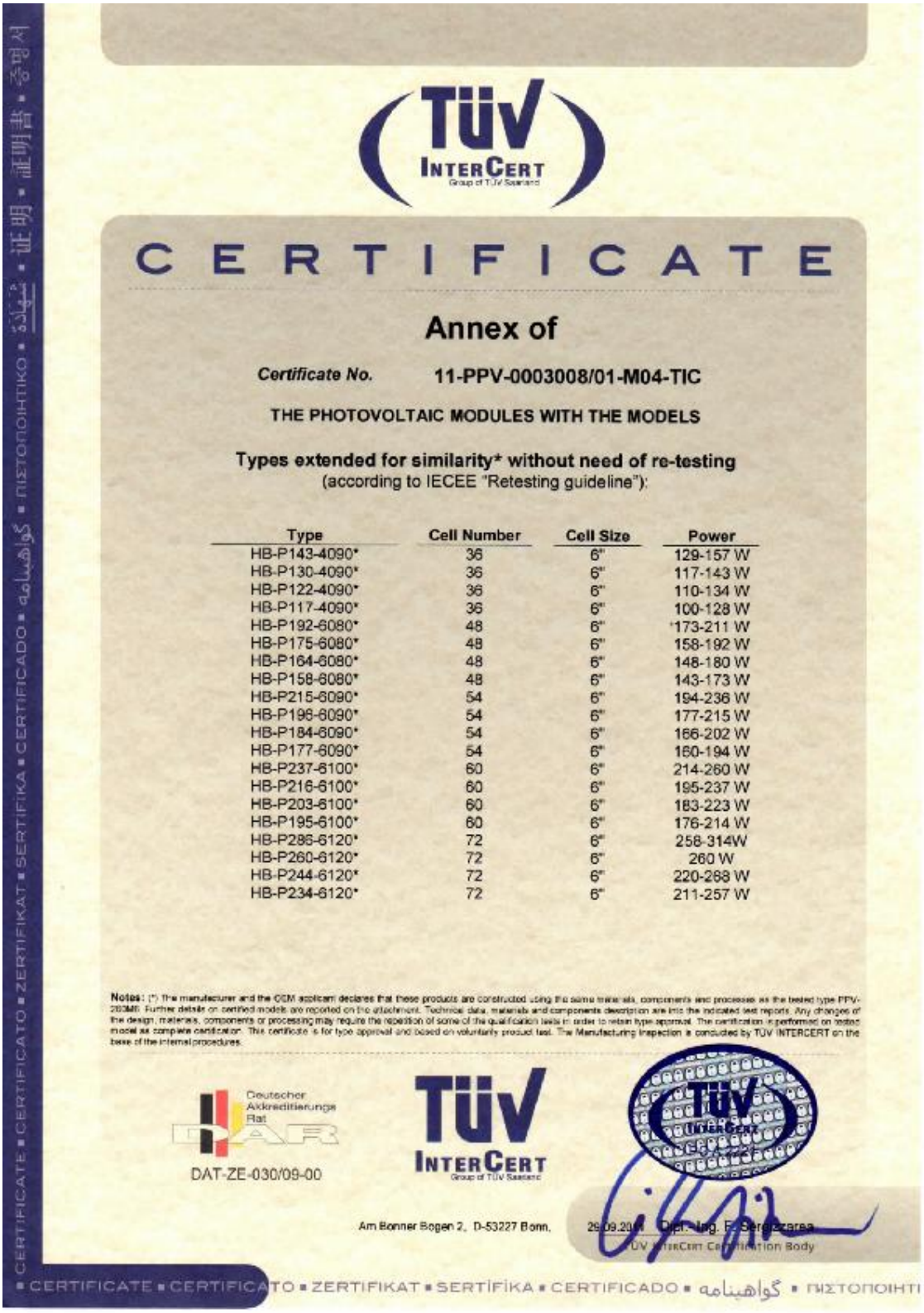

TÜV INTERCERT Group of TÜV Saarland

CERTIFICATE

Annex of

Certificate No. 11-PPV-0003008/01-M04-TIC

THE PHOTOVOLTAIC MODULES WITH THE MODELS

Types extended for similarity* without need of re-testing
(according to IECEE "Retesting guideline"):

Type	Cell Number	Cell Size	Power
HB-P143-4090*	36	6"	129-157 W
HB-P130-4090*	36	6"	117-143 W
HB-P122-4090*	36	6"	110-134 W
HB-P117-4090*	36	6"	100-128 W
HB-P192-6080*	48	6"	173-211 W
HB-P175-6080*	48	6"	158-192 W
HB-P164-6080*	48	6"	148-180 W
HB-P158-6080*	48	6"	143-173 W
HB-P215-6090*	54	6"	194-236 W
HB-P196-6090*	54	6"	177-215 W
HB-P184-6090*	54	6"	166-202 W
HB-P177-6090*	54	6"	160-194 W
HB-P237-6100*	60	6"	214-260 W
HB-P216-6100*	60	6"	195-237 W
HB-P203-6100*	60	6"	183-223 W
HB-P195-6100*	60	6"	176-214 W
HB-P286-6120*	72	6"	258-314W
HB-P260-6120*	72	6"	260 W
HB-P244-6120*	72	6"	220-268 W
HB-P234-6120*	72	6"	211-257 W

Notes: (*) The manufacturer and the ODM applicant declares that these products are constructed using the same materials, components and processes as the tested type PPV-0003M0. Further details on certified models are reported on the attachment. Technical data, materials and components description are into the indicated test reports. Any changes of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval. The certification is performed on tested model as complete certificator. This certificate is for type approval and based on voluntarily product test. The Manufacturing Inspection is conducted by TÜV INTERCERT on the base of the internal procedures.

Deutscher Akkreditierungs Rat
DAR
DAT-ZE-030/09-00

TÜV INTERCERT Group of TÜV Saarland

Am Bonner Bogen 2, D-53227 Bonn, 29.09.2011 Dipl.-Ing. F. Sergeszarea
TÜV InterCert Certification Body

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CERTIFICATE ▪ CERTIFICATO ▪ ZERTIFIKAT ▪ SERTİFİKA ▪ CERTIFICADO ▪ گواهینامه ▪ ΠΙΣΤΟΠΟΙΗΤΙΚΟ ▪ 证明 ▪ 証明書 ▪ 증명서

HBKCS
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PROJECT REFERENCE

At present, HBKCS products have been widely applied in 30 countries, including Germany, Italy, Australia, Japan, India, and China.

Project in Pakistan:

- Sanjwal Solar Power Plant was successfully installed / commissioned.
- Inaugurated by Mr. Rana Tanveer Hussain, Federal Minister for Defence Production on 28th March 2017.
- It is the first largest Captive Solar Power Plant in Pakistan for industrial use.

Capacity	**5.04 MWp**		
Land Area	95,000 m^2 (23 Acres)		
Mode of operation	Grid-tied		
PV Modules	Type	Ploy Crystalline	
	Qty.	21,000 Nos.	
	Capacity	240W	
Inverter	Qty.	10 Nos.	
Transformer	Qty.	05 Nos.	
Grid Voltage	11 kV		
Guaranteed PR	84.5%		
Power Generation:	FAT	:	8,269 GWh
	1st year	:	8,170 GWh
	25 years	:	190,634 GWh
Capacity Utilization Factor (CUF)	18.5%		
Plant Life	25 years		

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TOP PROJECTS IN WORLD

- HBKCS is a successful implementer of Solar Power Projects internationally.
- HBKCS experience in Solar Power Plants is shown below.

Country	Capacity	Type	Location	Completion	Panels	PR value
China	20MW	Design ,Module supply and supervision	Nei Monggol	Mar. 2015	HB-315-6MA	82.30%
Thailand	15MW	EPC contractor	Saraburi	2010	HB-P210W	85.00%
India	15MW	Design, Module supply and supervision	India	May,2014	HB-P300W	86%
Pakistan	5MW	EPC contractor	Sanjwal	2016	HB-240-6PB	84.5%
Japan	3.5MW	Design, Module supply and supervision	Japan	2014	HB-P250w	85%
Germany	2.88MW	Design, Module supply and supervision	Germany	2013	HB-P295w	85%
Japan	2.6MW	Design, Module supply and supervision	Japan	2012	HB-M300w	83%
Italy	2MW	EPC contractor	Taranto/Puglia	2011	HB-P220W	82%
Japan	2MW	Design, Module supply and supervision	Japan	2014	HB-P260w	84%
Canada	2MW	Design, Module supply and supervision	Alberta Province	2011	HB-P220W	81%
Japan	1.8MW	Design, Module supply and supervision	Japan	2015	HB-P260w	83%

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Country	Capacity	Type	Location	Completion	Panels	PR value
Denmark	1.8MW	Design, Module supply and supervision	Denmark	2013	HB-M195W	83%
Japan	1.3MW	Design, Module supply	Japan	2015	HB-P260w	83%
Japan	1.2MW	EPC contractor	Japan	2012	HB-P245w	84%
Belgium	1.0 MW	EPC contractor	Belgium	2013	HB-P245w	84%
Japan	1.0MW	Design, Module supply and supervision	Japan	2015	HB-P260w	83%
Germany	1.0MW	Design, Module supply and supervision	Germany	2014	HB-P245W	86%
Taiwan	998KW	Design, Module supply and supervision	Tainan Guantian – Midlands Technology	Oct. 10, 2013	HB-P240W	84%
Japan	848KW	Design, Module supply and supervision	Hyogo	May 20, 2013	HB-F260B	82%
Taiwan	524KW	EPC contractor	Kao-Ping	March 20, 2014	HB-M260J3WG-6100	86%
Japan	524KW	Design, Module supply and supervision	Hyogo	March 20, 2014	HB-M260J3WG-6100	86%
Taiwan	500KW	EPC contractor	Chang-Hwa Industrial Park	2011	HB-P220W	82%
Philippines	500KW	Design, Module supply and supervision	St. Maria	2011	HB-P250W	
Taiwan	499.26 KW	IPP and EPC contractor	Chang-Hwa Wanggon	June 5, 2015	HB-P260W	85%
Taiwan	499.18 KW	EPC contractor	Pingtung	June 10, 2013	HB-P240J2WG-6100	86%

Country	Capacity	Type	Location	Completion	Panels	PR value
Japan	524KW	Design, Module supply and supervision	Hyogo	March 20,2014	HB-M260J3WG-6100 2016 片	86%
Taiwan	500KW	EPC contractor	Chang-Hwa Industrial Park	2011	HB-P220W	82.00%
Philippines	500KW	Design, Module supply and supervision	ST. MARIA		HB-P250W	
Taiwan	499.26 KW	IPP and EPC contractor both	Chang-Hwa Wanggong	June.5, 2015	HB-P260w	85%
Taiwan	499.2KW	EPC CONTRACTOR	Pingtung	June.10, 2013	HB-P240J2WG-6100	86%
Taiwan	499.18 KW	Design, Module supply and supervision	Pingtung (Fangliao) - Taiyuan Daylight Limited	Jun. 15, 2013	HB-P240W	83%
Taiwan	499KW	EPC CONTRACTOR	Tainan, Taiwan	Dec.26, 2012	HB-M250A3-6100	82%
Taiwan	499KW	Design, Module supply and supervision	Pingtung (Fangliao) - Taichi cause Ltd.	Aug. 25, 2013	HB-P240W	83%
Taiwan	497KW	EPC CONTRACTOR	Chia-Yi	Nov.22, 2011	HB-P230A3-6100	84%
Taiwan	495KW	Design, Module supply and supervision	Yunlin Dongshih-Huang Li Jin Tsung	Oct. 30, 2015	HB-P260W	
Taiwan	495KW	Design, Module supply and supervision	Yunlin Dongshih-Huang Jin Shr	Oct. 30, 2015	HB-P260W	
Taiwan	495KW	EPC contractor	Yunlin Basement - Chang Zhang	Nov. 30, 2015	HB-P260W	
Taiwan	495KW	EPC contractor	Yunlin yuan long - Tony Chen Xu	Nov. 30, 2015	HB-P260W	

Taiwan	495KW	EPC contractor	Yunlin four lakes - Liu Jing	Nov. 30, 2015	HB-P260W	
Country	**Capacity**	**Type**	**Location**	**Completion**	**Panels**	**PR value**
Taiwan	495KW	EPC contractor	Yunlin Yuan Long - Wu Yuhui	Nov. 30, 2015	HB-P260W	
Taiwan	495KW	Design, Module supply and supervision	Yunlin four lakes - Wang Anzhong	Nov. 30, 2015	HB-P260W	
Taiwan	495KW	Design, Module supply and supervision	Yunlin four lakes - Wu Feng	Nov. 30, 2015	HB-P260W	
Taiwan	495KW	Design, Module supply and supervision	Yunlin yuan long - Yang Wenxing	Nov. 30, 2015	HB-P260W	
Taiwan	492KW	EPC contractor	Taichung	2011	HB-P220W	82.50%
Taiwan	492KW	Design, Module supply and supervision	Yunlin yuan long - Sophie	Nov. 30, 2015	HB-P260W	
Taiwan	490KW	EPC CONTRACTOR	Pingtung	June.10,2013	HB-P250	82%
Taiwan	490KW	Design, Module supply and supervision	Pingtung (Xinpi) sunlight Technology Co., Ltd.	Aug.25,2013	HB-P240W	83%
Taiwan	490KW	EPC contractor	Pingtung (Xinpi) - Thousand sunlight Technology Co., Ltd.	Oct. 10, 2013	HB-P240W	84%
Taiwan	473KW	EPC contractor	Yunlin Basement - Yang Decheng	Nov. 30, 2015	HB-P260W	
Taiwan	469.2KW	EPC contractor	Changhua Pitou - amount too Industrial Co., Ltd.	Jun. 15, 2013	HB-P240W	84%
Taiwan	451KW	EPC contractor	Yunlin yuan long - Liguo Tian 451kw	Nov. 30, 2015	HB-P260W	
Taiwan	451KW	Design, Module supply and supervision	Yunlin four lakes - Wu Xiu beam 451kw	Nov. 30, 2015	HB-P260W	

Taiwan	468.51 KW	Design, Module supply and supervision	Pingdong-Kanding	Mar. 15, 2013	HB-P240W	83%
Taiwan	464.28 KW	EPC contractor	Yunlin Dongshih-Taiji Zhuiri system	Apr. 20, 2014	HB-P245W	82%
Country	**Capacity**	**Type**	**Location**	**Completion**	**Panels**	**PR value**
Taiwan	445.5KW	EPC contractor	Yunlin East situation - Linjun Ru	Nov. 30, 2015	HB-P260W	
Taiwan	445.5KW	EPC contractor	Yunlin yuan long - Chen breeze	Nov. 30, 2015	HB-P260W	
Taiwan	414KW	Design, Module supply and supervision	Yunlin four lakes - Wu Dong	Nov. 30, 2015	HB-P260W	
Taiwan	330.72 kW	EPC CONTRACTOR	Kaohsiung	Nov.18, 2014	HB-M260J3WG-6100	84%
Taiwan	300KW	EPC contractor	Kao-Ping	2011	HB-P210W	82%
Belgium	280KW	EPC contractor	Belgium	2012	HB-P245w	82%
Taiwan	247.5KW	Design, Module supply and supervision	Yunlin Yuan Long - Cai Yi Ci	Nov. 30, 2015	HB-P260W	
USA	210KW	EPC contractor	Boston	2011	HB-P210W	83%
Taiwan	208KW	IPP and EPC contractor both	Chang-Hwa Wanggong	July.3, 2014	HB-P245w	82%
Taiwan	208KW	Design, Module supply and supervision	Zhanghua Wang-Gong (1)	Jun. 30, 2014	HB-P245W	82%
Germany	112KW	EPC contractor	Bocholt/Eschenburge	2012	HB-P210W	84%
Taiwan	98.8KW	Design, Module supply and supervision	Zhanghua Wang-Gong (3)	Jul. 2016	HB-P260W	

Taiwan	99.18KW	Design, Module supply and supervision	Zhanghua Wang-Gong (3-2)	Dec. 2016	HB-P290W	
Japan	50KW	Design, Module supply and supervision	Japan	2013	HB-P245w	84%
Country	**Capacity**	**Type**	**Location**	**Completion**	**Panels**	**PR value**
Taiwan	49KW	EPC contractor	HsinChu	2010	HB-P200W	84%
Taiwan	10.5KW	Design, Module supply and supervision	Yunlin Sanjie Cun-Zhuiri System	Aug. 15, 2014	HB-P245W	83%
Taiwan	9.36KW	EPC contractor	Zhanghua Wang-Gong (2)	Apr. 25, 2014	HB-P245W	83%
Taiwan	9.36KW	EPC contractor	Beixian Xinzhuang-Zongwei Industria/Anjie Guangdian	Nov. 25, 2014	HB-P245W	83%
Taiwan	9KW	Design, Module supply and supervision	Taoyuan Guanyin-Caota Primary school	Jul. 10, 2014	HB-P245W	84%

Solar Project in the world after 2016

Country	Capacity	Type	Location	Completion	Panels	PR value
Singapore	0.20	Floating Project	Singapore	2016-10	HB-315-6PA	84.59%
Thailand	0.10	Commercial	Bangkok	2016-10	HB-315-6PA	84.00%
Pakistan	5.00	G-Mounted	Pakistan	2016-10	HB-260-6PB	83.85%
Thailand	0.10	Commercial	Bangkok	2016-12	HB-320-6PA	83.90%
Philippines	0.10	Commercial	Manila	2016-12	HB-310-6PA	84.34%
Netherland	0.14	Commercial	Amsterdam	2016-2	HB-260-6PB	83.93%
Philippines	0.03	Commercial	Manila	2016-3	DuraFlex ™**6MB 265W**	82.98%
Turkey	1.00	G-Mounted	Aydın	2016-3	HB-250-6PB	83.17%
Turkey	1.00	G-Mounted	Aydın	2016-3	HB-250-6PB	83.37%
Australia	0.10	Commercial	Melbourne	2016-6	HB-260-6PB	85.10%
China	1.65	Commercial	Shandong	2016-7	HB-260-6PB	84.98%
China	2.00	Commercial	Shandong	2016-7	HB-260-6PB	83.97%
Thailand	0.01	Commercial	Saraburi	2016-7	HB-260-6PB	84.11%
Philippines	0.03	Commercial		2017-1	HB-320-E01B	84.19%
China	1.00	Commercial	Shanghai	2017-1	HB-265-6PB	84.00%
Singapore	0.83	Commercial	Singapore	2017-10	HB-325-6PA	83.93%
Philippines	0.15	Commercial	Manila	2017-10	HB-330-6PA	83.92%
China	20.00	G-Mounted	Hunan	2017-11	HB-320-6PA	82.93%
China	5.00	G-Mounted	Henan	2017-11	HB-300-E11B	84.00%
South Africa	0.03	Commercial	KwaZulu Natal	2017-11	HB-330-6MA	83.91%

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USA	2.30	G-Mounted	NY	2017-11	HB-340-6MA	83.29%
USA	1.58	G-Mounted	Inglewood	2017-12	HB-340-6MA	83.11%
USA	14.00	G-Mounted	Bend, Oregon,	2017-12	HB-325-6PA	84.47%
USA	1.30	G-Mounted	Pittsfield	2017-12	SEG-340-6MA	82.19%
USA	0.93	G-Mounted	san jose	2017-12	SEG-340-6MA	83.11%
Philippines	0.10	Commercial	Manila	2017-12	HB-265-6PB	84.43%
USA	7.00	G-Mounted	Florida	2017-12	HB-325-6PA	83.99%
Ukraine	1.20	G-Mounted	Izmail	2017-3	HB-315-6PA EZBox	82.10%
USA	1.58	G-Mounted	Inglewood, CA	2017-3	HB-340-6MA	83.21%
India	0.56	Parking Lot		2017-5	HB-320-6PA	83.11%
Singapore	1.00	G-Mounted	Singapore	2017-5	HB-315-6PA	83.87%
China	35.00	G-Mounted	Jingle,Shanxi	2017-6	HB-265-6PB	82.15%
USA	14.00	G-Mounted	Bend, Oregon	2017-7	HB-325-6PA	82.57%
USA	14.00	G-Mounted	Bend, Oregon	2017-7	HB-325-6PA	82.49%
China	15.00	Floating Project	Hunan	2017-8	HB-320-6PA	82.39%
China	1.50	Commercial	Changzhou	2018-01	HB-325-E01B	83.30%
Thailand	0.03	Commercial	Bangkok	2018-1	HB-340-6MA	83.80%
Thailand	0.08	Commercial	Samut Prakan	2018-1	HB-340-6MA	84.50%
Thailand	0.90	Commercial	Chachoengsao	2018-1	HB-340-6MA	84.50%
New Zealand	0.01	Commercial	Christchurch	2018-1	HB-270-6PB	84.50%
China	10.00	Commercial Rooftop	Hubei	2018-1	HB-280-6MB	83.23%
Indonesia	0.01	Residential	Jakarta	2018-11	HB-265-6PB	84.19%
China	1.50	Commercial Rooftop	Changzhou	2018-12	HB-310-E01B	83.12%

New Zealand	0.05	Commercial Rooftop	Christchurch	2018-2	HB-270-6PB	84.10%
USA	13.00	G-Mounted	Oregan	2018-3	HB-6PA-325	84.93%
South Africa	0.29	Commercial	Cape Town	2018-3	HB-320-6PA	84.30%
New Zealand	0.03	Commercial Rooftop	Christchurch	2018-3	HB-270-6PB	84.50%
Singapore	1.80		Tuas	2018-4	HB-320-6PA	84.78%
China	8.00	Fishery Hybrid PV Plant	Changzhou	2018-4	HB-270-6PB-DG	83.10%
China	0.50	Commercial Rooftop	Macao	2018-4	HB-300-6MB	83.99%
Japan	4.00	G-Mounted	Kyushu	2018-6	HB-295-E11B	83.59%
India	0.75	Commercial	Pune	2018-6	HB-335-BPA	84.54%
China	55.00	Fishery Hybrid PV Plant	Yueyang，Hunan	2018-6	HB-320-6PA	83.46%
China	80.00	G-Mounted	Qidong，Hunan	2018-6	HB-320-6PA	82.28%
China	0.06	Residential	Hubei	2018-7	HB-315-E01B	83.14%
Australia	1.00	G-Mounted	Perth, WA	2018-8	HB-340-6MA	83.67%
Indonesia	0.02	Residential	Jakarta	2018-8	HB-270-6PB	84.95%
South Africa	0.10	G-Mounted	Cape Town	2018-9	HB-320-6PA	83.90%
Brazil	0.88	G-Mounted	Rio Grande do Sul	2018-9	HB-330-6PA	84.09%
Australia	2.80	G-Mounted	Yongala	2019-1	HB-330-6PA	83.19%
China	0.21	Commercial Rooftop	Changzhou	2019-2	HB-270-6PB	84.11%
Ukraine	123.00	G-Mounted	Nikopol	2019-3	HB-330-6PA	83.90%
Mexico	0.30	Commercial	Merida	2019-3	HB-320-6PA	84.45%
Singapore	1.60		Woodlands	2019-4	HB-320-6PA	84.03%
Vietnam	50.00	G-Mounted	Khanh Hoa Province	2019-5	HB-340-6MA	82.44%
Vietnam	30.00	G-Mounted	Dak Lak	2019-5	HB-345-6MA	83.05%

感謝状

HBKCS INTERNATIONAL CO.,LTD.　殿

貴社は兵庫県小野市 1.8MW太陽光発電システム建設にあたり
厳密な品質管理と優秀な技術力を持って迅速かつ的確な
対応をいただき並列接続する発電を成功されました
よってここに深く感謝の意を表します

会長　張俊傑

平成　27　年　12　月　15　日

Certificate of Appreciation

HBKCS INTERNATIONAL CO., LTD. is committed to installing 1.8MW solar power system in Ono-shi, Hyogo-ken, Japan in Heisei 27.
With superior quality management and rigorous construction techniques, the solar power system is combined to the grid in the same year.

Director
ZHANG, JUN-JIE
Date: December 15, Heisei 27

感 謝 狀

HBKCS INTERNATIONAL CO.,LTD.

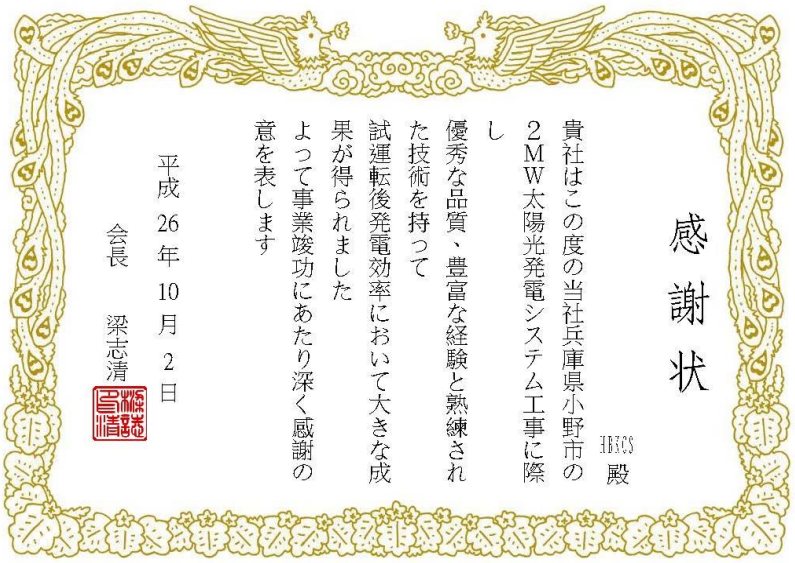
平成 27 年於日本兵庫縣小野市承作
1.8MW 太陽能發電系統工程
出眾的品質管理及嚴謹的施工技法
極有效率的在當年成功併聯發電

特頒此狀 以表謝忱

會長　張俊傑

平成 二十七 年 十二 月 十五 日

HBKCS
www.hbkcs-solar.com



感謝状

HBKCS 殿

貴社はこの度の当社兵庫県小野市の
２ＭＷ太陽光発電システム工事に際
し
優秀な品質、豊富な経験と熟練され
た技術を持って
試運転後発電効率において大きな成
果が得られました
よって事業竣功にあたり深く感謝の
意を表します

平成 26 年 10 月 2 日

会長　梁志清

Awards of Appreciation

Presented to

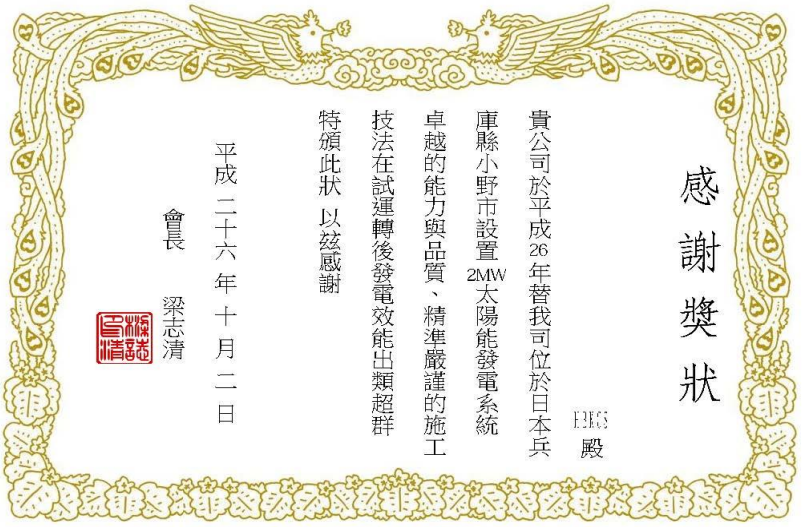
HBKCS INTERNATIONAL CO., LTD.

We would like to express our sincere appreciation to you for your dedication and assistance for installing the 2MW solar power generation system in Ono-shi, Hyogo-ken, Japan in Heisei 26.

The solar power generation system is achieved maximum energy efficiency after commissioning with your excellent ability and quality, precise and rigorous construction techniques.

Date: October 2, Heisei 26.

Director
LIANG, ZHI-QING



感謝獎狀

HBKCS 殿

貴公司於平成26年替我司位於日本兵
庫縣小野市設置2MW太陽能發電系統
卓越的能力與品質、精準嚴謹的施工
技法在試運轉後發電效能出類超群
特頒此狀 以茲感謝

平成二十六年十月二日

會長　梁志清

CTF

Certificate of Appreciation

Hereby it is certificated that

HBKCS INTERNATIONAL CO.,LTD.

is committed to installing 1 MW Solar Power System

with outstanding performance at Chang-Hua County

in 2016.

Cheng Tai Fung Solar Energy Co., Ltd

Chief Executive Officer *Lin Chi-tsung*

Date: November 15, 2016

CTF

感謝狀

本公司於2016年委託 HBKCS INTERNATIONAL CO.,LTD. 於彰化縣設置太陽光電發電設備，裝置容量1MW，效果其彰

特致此狀　謹申謝忱

承太豐能源有限公司

CEO 林啓聰

2016 年 11 月 15 日

HBKCS

www.hbkcs-solar.com

logy is changing es at a pace never before witnessed in all of human history, and with it, the way we see the world. More than a hundred years ago the incandescent filament brought illumination to the night, multiplying human productivity at an exponential rate. Later, fluorescent light rose up as a power-saving alternative to the incandescent.

There are a number of important reasons why HBKCS LED lighting is better than other lighting technologies:

Longer life spans:

HBKCS LED lamps last 35,000 hours - 30 times longer than incandescent, 25 times longer than halogen and 10 times longer than compact fluorescent lamps. Not only will you be helping the environment, you'll be saving money, too.

High Efficiency:

Saves users up to 70% on energy usage compared to standard dichroic low-wattage halogen and incandescent lamps, lowering electricity bills. An 5W LED MR16 bulb generates as much light as an 9W CFL, an 35W halogen, and 80% energy saving compared to CFL downlight - A 15W LED downlight

generates as much light as a 2x13W CFL downlight and 75W incandescent bulb. Energy usage translates directly into significant cost savings, especially in commercial applications where large quantities of lamps are used.

Green lighting technology:

Lower energy usage makes LED lighting better for the environment, but it's a very green technology in other ways as well. Since no heat is produced, it can reduce interior temperatures by 1-2 degrees, lowering air-conditioning costs and CO2 emissions. LED lighting is also much safer for the environment because it is mercury-free and doesn't produce IR or UV rays, which can be harmful to humans. In other words, LED lamps are the greenest and most environmentally-friendly source of light on the market.

Superior color, increased comfort:

Clear light and high marks on the Color Rendering Index (CRI), which indicates accurate true color reproduction, means LED lights produce light that is more pleasing and relaxing, increasing comfort and mood.

LED LIGHTS SILENT FEATURES:

- Authorized Certifications: United States "UL" listed European Union "CE", and Taiwan "CNS". HBKCS street light is with high reliability and outstanding illumination output.
- Light fading rate is less than 1% within 4,000 hours; less than 2% within 5,000 hours.
- 100% proprietary ownership of related techniques to deliver speedy trouble-shooting service and maintenance.
- Separated power supply and lamp head to reduce maintenance cost.
- Lightweight, floating on the water, and weighed equivalently to traditional lights. All these advantages lead to higher stability and safety.

- OQC gating at IP level 67 to extend lifespan and avoid the capillarity.
- Qualified by Level 17 wind tunnel test to enhance the resistance and reduce damages from typhoon and natural disasters.
- Our light is one of the best among worldwide current market with 1~2 times higher illumination output than others.
- The material of lampshade is solid and also with anti-UV treatment.
- The unique brightening fluid brings superior extra 10% brightness on the light source penetrability.
- Qualified by salt mist test and suitable for coast island climate.

LED STREET LIGHTS:

<table>
<tr><td rowspan="3">  </td><td>35W</td></tr>
<tr><td>65W</td></tr>
<tr><td>100W</td></tr>
<tr><td rowspan="3">  </td><td>120W</td></tr>
<tr><td>150W</td></tr>
<tr><td>180W</td></tr>
<tr><td></td><td>240W</td></tr>
</table>

LED STREET LIGHT (35 W)

LED Chip	Philips Lumileds
Light efficacy	＞120 lm/W
Color temperature	3000K/5000K
Total lumens	＞4500 lm
CRI	＞70

Operating Temperature	-40°C～+60°C
Ingress Protection level	IP65
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜4Kg

LED STREET LIGHT (65 W)

LED Chip	Philips Lumileds
Light efficacy	＞120 lm/W
Color temperature	3000K/5000K
Total lumens	＞8000 lm
CRI	＞70
Operating Temperature	-40°C～+60°C
Ingress Protection level	IP65
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜4Kg

LED STREET LIGHT (100 W)

LED Chip	Philips Lumileds
Light efficacy	＞140 lm/W
Color temperature	3000K/5000K
Total lumens	＞14000 lm

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CRI	＞70
Operating Temperature	-40°C～+60°C
Ingress Protection level	IP65
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜4Kg

LED STREET LIGHT (120 W)

LED Chip	Philips Lumileds
Light efficacy	＞105 lm/W
Color temperature	3000～5000
Total lumens	＞12600 lm
CRI	＞70
Operating Temperature	-40°C～+60°C
Ingress Protection level	IP67
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜6Kg

LED STREET LIGHT (150 W)

LED Chip	Philips Lumileds
Light efficacy	＞105 lm/W
Color temperature	3000～5000

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Total lumens	＞16000 lm
CRI	＞70
Operating Temperature	-40°C～+60°C
Ingress Protection level	IP67
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜7.5Kg

LED STREET LIGHT (180 W)

LED Chip	Philips Lumileds
Light efficacy	＞105 lm/W
Color temperature	3000～5000
Total lumens	＞19000 lm
CRI	＞70
Operating Temperature	-40°C～+60°C
Ingress Protection level	IP67
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜7.5Kg

LED STREET LIGHT (240 W)

LED Chip	Philips Lumileds
Light efficacy	＞105 lm/W

Color temperature	3000～5000
Total lumens	＞25000 lm
CRI	＞70
Operating Temperature	-40°C～+60°C
Ingress Protection level	
Voltage	100-240VAC
Frequency	50Hz/60Hz
Weight	＜7.5Kg