

Certificate

Registration No.: PV 50184235

Page 4

Report No.: 15037936.011

License Holder:

Nanjing Daqo New Energy Co.,Ltd.
No.28 Yinlong Road,
Jiangning Development Zone, Nanjing,
Jiangsu, 211153
P.R. China

Product:

PV Modules
Type:
Same as page 1 - 3

Manufacturing Plant:

Nanjing Daqo New Energy Co.,Ltd.
No.28 Yinlong Road,
Jiangning Development Zone, Nanjing,
Jiangsu, 211153
P.R. China

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.



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Remarks:

- Valid in conjunction with TÜV Rheinland certificate PV50182934 Page 1 - 3.
- The above listed PV modules fulfil the requirements of Application **Class A (Class II acc. to IEC 61140)**. They may be used in PV plants at a maximum system voltage (Voc at STC) of up to **1000 VDC**.
- The fire test (IEC 61730-2 / MST 23) was performed.
- The above listed PV modules fulfil the requirements of fire rating class C.

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 11 June 2015.



Certification body



Dipl.-Ing. (TU) Gerd Reimann

26 June 2013

TÜV Rheinland (Shanghai) Co., Ltd.

Test Report

**Photovoltaic module qualification
according to IEC 61730-1:2004
and IEC 61730-2:2004**

TÜV Report No: 15037936.011

Shanghai, June 2013



Deutsche
Akkreditierungsstelle
D-PL-11097-02-01

Test report no.: <i>Prüfbericht - Nr.:</i>	15037936.011				
Client (Customer no. + address): <i>Auftraggeber</i> <i>(Kunden-Nr. u. Adresse):</i>	Nanjing Daqo New Energy Co., Ltd. <i>No.28 Yinlong Road, Jiangning Development Zone, Nanjing, Jiangsu</i> <i>211153 P.R. China</i>				
Test item: <i>Gegenstand der Prüfung:</i>	Photovoltaic (PV) Module(s)	Date of receipt: <i>Eingangsdatum:</i>	16/04/2013		
Identification: <i>Bezeichnung:</i>	See next page for details (for details see Constructional Data Form (CDF) no. 15037935.010)				
Order no.: <i>Auftragsnummer:</i>	154023961	Quotation no.: <i>Angebotsnummer:</i>	52080380		
Testing location: <i>Prüfart:</i>	TÜV Rheinland (Shanghai) Co., Ltd. B1-13F No. 177, Lane 777, West Guangzhong Road, Zhabei District Shanghai 200072, P. R. China TÜV Rheinland Taiwan Co., Ltd. No.9 Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City 428, Taiwan, R.O.C. Industrial Technology Research Institute of Taiwan, R.O.C., Photovoltaic Metrology Laboratory 195, sec 4, Chung Hsing Rd., Chutung, Hsinchu, Taiwan 31040, R.O.C.				
Test specification: <i>Prüfgrundlage:</i>	IEC 61730-1: 2004 , EN 61730-1: 2007 "Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction" IEC 61730-2: 2004 , EN 61730-2: 2007 "Photovoltaic (PV) module safety qualification – Part 2: Requirements for testing"				
Test result: <i>Prüfergebnis:</i>	All of the required tests of the IEC 61730-1, -2: 2004 standard were passed according to its regulations of the pass criteria. It is therefore declared, that the photovoltaic modules of the aforementioned types fulfil the requirements of the standard IEC 61730-1, -2: 2004 and it is recommended that certification should be granted.				
compiled by / erstellt:			reviewed by / kontrolliert:		
	Project Engineer / Martin Zhu		Technical Certifier / Gary Zhou		
<i>26/06/2013</i>	<i>Martin Zhu</i>	<i>26/06/2013</i>	<i>[Signature]</i>		
Date <i>Datum</i>	Title/Name <i>Titel/Name</i>	Signature <i>Unterschrift</i>	Date <i>Datum</i>	Title/Name <i>Titel/Name</i>	Signature <i>Unterschrift</i>
Other Aspects / Sonstiges:					
The fire test Class C (IEC 61730-2 / MST 23) was performed on module type DQ300PSDa and DQ260MSCa as representative models.					
Factory inspection report:					
<i>Fertigungsstätten-</i> <i>inspektionsbericht:</i>		15037444.003			
This test report relates to the listed test samples. Without permission of the test centre this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.					
Dieser Prüfbericht bezieht sich nur auf die gelisteten Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.					

Address/es of the manufacturing site/s:

Name / Description:	Nanjing Daqo New Energy Co., Ltd.
Street:	No.28 Yinlong Road, Jiangning Development Zone,
Postcode / City, Country:	Nanjing, Jiangsu 211153, P.R. China
Type of production:	C-Si PV-module production
Inspection report No:	15037444.003

Module type

5" mono c-Si families:
 DQxxxMFAa (xxx=165-210, in steps of 5)
 6" mono c-Si families:
 DQxxxMSDa (xxx=270-325, in steps of 5)
 DQxxxMSCa (xxx=225-270, in steps of 5)
 DQxxxMSBa (xxx=205-245, in steps of 5)
 6" poly c-Si families:
 DQxxxPSDa (xxx=260-315, in steps of 5)
 DQxxxPSCa (xxx=205-260, in steps of 5)
 DQxxxPSBa (xxx=180-235, in steps of 5)

Table of content

Summary of testing	5
General product information	9
Tables Part 1 (IEC 61730-1)	10
Application Classes (Clause 3)	10
Annex 1: Fire test report	11

Summary of testing

History of certification:				
Subject	Module type	Report no.	Certificate no.	Date of issue
Basic qualification EN IEC 61215	Type with 5" mono-crystalline cell: DQ***MFAa (***=165-190, in steps of 5) Type with 6" poly-crystalline cell: DQ***PSBa (***=180-220, in steps of 5) DQ***PSCa (***=205-245, in steps of 5)	15037935.001	PV 50182934 Page 1	11.06.2010
Basic qualification EN IEC 61730	See above	15037936.001	PV 50184235 Page 1	08.07.2010
Add Junction Box	Type with 5" mono-crystalline cell type: DQ***MFAa (***=165-190, in steps of 5) Type with 6" poly-crystalline cell type: DQ***PSBa (***=180-220, in steps of 5) DQ***PSCa (***=205-245, in steps of 5)	15037935.002	Declaration	10.10.2010
Add Junction Box	See above	15037936.002	Declaration	10.10.2010
Co License	With 5" mono-crystalline cell type: NH-***M72A (***=165-190 in steps of 5) With 6" poly-crystalline cell type: NH-***PO (***=180-220 in steps of 5) NH-***P (***=205-245 in steps of 5)	15037935.003	PV 50198390 Page 1	09.03.2011
Co License	See above	15037936.003	PV 50198394 Page 1	09.03.2011
Add Junction Box	Type with 5" mono-crystalline cell: DQ***MFAa (***=165-190, in steps of 5) Type with 6" poly-crystalline cell: DQ***PSBa (***=180-220, in steps of 5) DQ***PSCa (***=205-245, in steps of 5)	15037935.004	Declaration	14.06.2011
Add Junction Box	See above	15037936.004	Declaration	14.06.2011
Co License	Type with 5" mono-crystalline cell: DQ***MFAa (***=165-190, in steps of 5) Type with 6" poly-crystalline cell: DQ***PSBa (***=180-220, in steps of 5) DQ***PSCa (***=205-245, in steps of 5)	15037935.005	PV50214137 Page1	21.10.2011
Co License	See above	15037936.005	PV50214139 Page 1	21.10.2011

Extension to higher power range and alternative junction boxes EN IEC 61215	With 5" mono cells: DQxxxMFAa (xxx=165-210, in steps of 5, 72pcs) With 6" poly cells: DQxxxPSCa (xxx=205-245, in steps of 5, 60pcs) DQxxxPSBa (xxx=180-220, in steps of 5, 54pcs)	15037935.006	PV50214137 Page 2	21.05.2012
Extension to higher power range and alternative junction boxes EN IEC 61730	See above	15037936.006	PV50214139 Page 2	21.05.2012
Extension to alternative materials EN IEC 61215	With 6" mono c-si cell types: DQxxxMSDa (xxx=270-325, in steps of 5, 72pcs) DQxxxMSCa (xxx=225-270, in steps of 5, 60pcs) DQxxxMSBa (xxx=205-245, in steps of 5, 54pcs) With 6" poly c-si cell types: DQxxxPSDa (xxx=260-315, in steps of 5, 72pcs) DQxxxPSCa (xxx=205-260, in steps of 5, 60pcs) DQxxxPSBa (xxx=180-235, in steps of 5, 54pcs)	15037935.007	PV50214137 Page 3	17.07.2012
Extension to alternative materials EN IEC 61730	See above	15037936.007	PV50214139 Page 3	17.07.2012
Extension to alternative junction box EN IEC 61215	DQxxxMFAa (xxx=165-210, in steps of 5)	15037935.009	Declaration	06.06.2013
Extension to alternative junction box EN IEC 61730	See above	15037936.009	Declaration	06.06.2013
Extension to alternative frame EN IEC 61215	DQxxxPSCa (xxx=205-260, in steps of 5) DQxxxPSBa (xxx=180-235, in steps of 5) DQxxxMSCa (xxx=225-270, in steps of 5) DQxxxMSBa (xxx=205-245, in steps of 5)	15037935.010	Declaration	20.06.2013
Extension to alternative frame EN IEC 61730	See above	15037936.010	Declaration	20.06.2013

Remarks: N/A

Summary of test locations:

The fire test was performed at industrial Technology Research Institute of Taiwan, R.O.C., Photovoltaic Metrology Laboratory

Summary of compliance with national differences:

Main reference for qualification testing is EN 61730-2:2007.

All tests of the IEC 61730-1: 2004, IEC 61730-2: 2004 standard were passed* according to its regulations of the pass criteria. As in the adoption of this standard to the European version (EN 61730-1, -2: 2007) the test criteria (IEC 61730-2) were not changed, the results of this qualification can cover both standards, as long as Application Class A is used. The changes from IEC to EN version are listed in the annex of this report. It is therefore declared, that the photovoltaic modules of the aforementioned types fulfil the requirements of the safety standard the IEC 61730-1: 2004, IEC 61730-2: 2004 and EN 61730-1, -2: 2007, Application Class A, and it is recommended that certification should be granted.

General information

Abbreviations used in the report:

CTI	– Comparative Tracking Index	PD	– Partial Discharge
FF	– Fill factor	STC	– Standard Test Conditions
I _{pm}	– Maximum power current	RTI	– Relative Thermal Index
I _{sc}	– Short circuit current	V _{oc}	– Open circuit voltage
MST	– Module Safety Test	V _{pm}	– Maximum power voltage
P _{max}	– Maximum power		

Possible test case verdicts:

- test case does not apply to the test object : N/A
- test object does meet the requirement : Pass (P)
- test object does not meet the requirement : Fail (F)

Date(s) of performance of tests : From 16/04/2013 until 21/06/2013

General remarks:

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

"(see appended table)" refers to a table in the CB Test Report.

Throughout this report a point is used as the decimal separator.

The tested module types are representative for the module type range to be certified.

Detailed product information are to be found in the CDF (constructional data form) no. 15037935.010

General product information
Scope of Module Safety Qualification Testing

- New module type
- Modifications (if yes, please choose the applicable modification according to the Retesting Guideline)
- Original test report ref. no.: 15037936.001-010
- Change in cell technology
 - Modification to encapsulation system
 - Modification to superstrate
 - Increase in module size
 - Modification to back sheet / substrate
 - Modification to frame and / or mounting structure
 - Modification to junction box / electrical termination
 - Change in cell interconnect materials or technique
 - Change in electrical circuit of an identical package
 - Higher or lower power output (by 10%) in the identical package including size and using the identical cell process
 - Qualification of a frameless module after the design has received certification as a framed module
 - Change in bypass diode or number of diodes

Description of similarity (differences) between the applied model and the previously tested model:

The fire test Class C (IEC 61730-2 / MST 23) was performed on module type DQ300PSDa and DQ260MSCa as representative models. It is judged as passed on all material combinations listed in the Constructional Data Form (CDF) in test report 15037936.010.

Tables Part 1 (IEC 61730-1)**Application Classes (Clause 3)**

	The module has been evaluated for the following Application Class (Class A, B, C)	Class A	P
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Remarks: This is extension project. Therefore the other part of IEC 61730-1 has been omitted, because it has been already checked in previous test report 15037936.001.

Annex 1: Fire test report

TÜV Rheinland Taiwan Ltd.
Solar/Fuelcell Technology
Photovoltaic Laboratory

Test Report

Photovoltaic module qualification
according to Fire test MST 23 of EN / IEC 61730-2:2004

TÜV Report No: 11033620 001



Daya, June 2013



QMA TRLP 6.1-350
 Version: 1
 01.08.2011

Produkte
 Products



Prüfbericht - Nr.: 11033620 001		Seite 2 von 5 Page 2 of 5	
<i>Test Report No.:</i>			
Auftraggeber: <i>Client:</i>	Nanjing Daqo New Energy Co., Ltd. No.28 Yinlong Road, Jiangning Development Zone, Nanjing, Jiangsu 211153 P.R.China		
Gegenstand der Prüfung: <i>Test item:</i>	Photovoltaic (PV) Module(s)		
Bezeichnung: <i>Identification:</i>	DQ300PSDa DQ260MSCa	Serien-Nr.: <i>Serial No.:</i>	Please see page 3 for sample list.
Wareneingangs-Nr.: <i>Receipt No.:</i>	114008663 (order no.)	Eingangsdatum: <i>Date of receipt:</i>	16 April 2013 (order open date)
Zustand des Prüfgegenstandes bei Anlieferung: Test item complete and undamaged Condition of test item at delivery:			
Prüfort: <i>Testing location:</i>	Industrial Technology Research Institute of Taiwan, R.O.C., Photovoltaic Metrology Laboratory 195, sec. 4, Chung Hsing Rd., Chutung, Hsinchu, Taiwan 31040, R.O.C.		
Prüfgrundlage: <i>Test specification:</i>	"Fire test MST 23, EN / IEC 61730-2:2004 Photovoltaic (PV) module safety qualification – Part 2: Requirements for testing"		
Prüfergebnis: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). The test item passed the test specification(s).		
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland Taiwan Ltd., Taichung Branch, Photovoltaic Laboratory		
erstellt / compiled by:		kontrolliert / reviewed by:	
			
Frank Wang / Project Engineer TÜV Rheinland Taiwan Ltd.		Robert Struwe / TC	
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>
20. Juni 2013			20. June 2013
Sonstiges/ Other Aspects:			
N/A			
Abkürzungen:	P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations:	P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test item. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

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 Mail: service@de.tuv.com · Web: www.tuv.com

Report No.: 11033620 001

3 / 5

Model type: DQ300PSDa (Family1)	
List of test samples	
Sample #	Sample S/N
1	DQ0413041603001
2	DQ0413041603005
3	DQ0413041603006
4	DQ0413041603009
Supplementary information:	
Manufacturer and type of material: - Glass: CSG Holding Co., Ltd. / 4.0 mm - EVA: Hangzhou First PV Material Co., Ltd. / First 806 - Back sheet: Toyo Aluminium K.K / BS-W250-S-FA20-LE - Edge sealing: Beijing Tonsan Adhesives Co., Ltd. / 1527 - Junction box: Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd. / PV-JM801-2 - Adhesive of junction box: Beijing Tonsan Adhesives Co., Ltd. / 1527	

Model type: DQ300PSDa (Family2)	
List of test samples	
Sample #	Sample S/N
1	DQ0413042602001
2	DQ0413042602005
3	DQ0413042602007
4	DQ0413042602008
Supplementary information:	
Manufacturer and type of material: - Glass: CSG Holding Co., Ltd. / 4.0 mm - EVA: Hangzhou First PV Material Co., Ltd. / First 806 - Back sheet: Changshu Topsolar Photovoltaics New Material Co., Ltd. / DFE3255B - Edge sealing: Beijing Tonsan Adhesives Co., Ltd. / 1527 - Junction box: Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd. / PV-JM801-2 - Adhesive of junction box: Beijing Tonsan Adhesives Co., Ltd. / 1527	

Report No.: 11033620 001

4 / 5

Model type: DQ260MSCa (Family3)	
List of test samples	
Sample #	Sample S/N
1	DQ0313042303002
2	DQ0313042303004
3	DQ0313042303006
4	DQ0313042303008
Supplementary information:	
Manufacturer and type of material: - Glass: CSG Holding Co., Ltd. / 3.2 mm - EVA: Bridgestone Corporation / S11 - Back sheet: Toyo Aluminium K.K / BS-W250-S-FA20-LE - Edge sealing: Beijing Tonsan Adhesives Co., Ltd. / 1527 - Junction box: Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd. / PV-JM801-2 - Adhesive of junction box: Beijing Tonsan Adhesives Co., Ltd. / 1527	

Report No.: 11033620 001

5 / 5

Fire test (MST 23)

Model type: DQ300PSDa (Family1)

	Module fire resistance class (A, B, C)	C	—
	No. of modules provided to create the test assembly	4	—
Sample #	Test item	Test result	Verdict
1 2 3	Spread-of-flame	<input checked="" type="checkbox"/> The module complies with the requirements for the fire resistance class C	P
4	Burning brand	<input checked="" type="checkbox"/> The module complies with the requirements for the fire resistance class C	
Supplementary information:			

Model type: DQ300PSDa (Family2)

	Module fire resistance class (A, B, C)	C	—
	No. of modules provided to create the test assembly	4	—
Sample #	Test item	Test result	Verdict
5 6 7	Spread-of-flame	<input checked="" type="checkbox"/> The module complies with the requirements for the fire resistance class C	P
8	Burning brand	<input checked="" type="checkbox"/> The module complies with the requirements for the fire resistance class C	
Supplementary information:			

Model type: DQ260MSCa (Family3)

	Module fire resistance class (A, B, C)	C	—
	No. of modules provided to create the test assembly	4	—
Sample #	Test item	Test result	Verdict
9 10 11	Spread-of-flame	<input checked="" type="checkbox"/> The module complies with the requirements for the fire resistance class C	P
12	Burning brand	<input checked="" type="checkbox"/> The module complies with the requirements for the fire resistance class C	
Supplementary information:			