

**Solar products and components  
Technical Document Ki – 0409****Technical Assessment Guideline**

*Applicable for the Kiwa KQ  
Certification Scheme:*

*Solar products and components*

**Accreditation**

Kiwa Italia S.p.A.  
Via Treviso 32/34  
31020 San Vendemiano (TV)  
Italia  
Tel: +39 0438 411 755  
Fax: +390438 22 428  
Internet: [www.1kiwa.com](http://www.1kiwa.com)  
e-mail: [info@kiwa.it](mailto:info@kiwa.it)

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**Approval and Ratification**

This Guideline assessment was approved by the Director of Kiwa Italy.


## Solar products and components Technical Document Ki – 0409

### Preface Kiwa

This Guideline is prepared by Kiwa Italy, being active in the field of Certification of Multilayer piping systems and fittings. The approval and operational implementation of this Guideline is according to the procedures and regulations of the quality system of Kiwa Italy.

Kiwa Italy will use this guide line assessment in consultation with Italy Kiwa Regulations for the Certification of the product. This regulation describes the methodologies applied by Kiwa Italy to conduct the necessary investigations prior to the issue of the certificate of product.

#### TABLE OF REVISIONS

Rev.	Date rev.	Description/summary of the revision (modified parts are shown by the sidebar)	
1.2	October '10	Update of the activities: including of PV inverter	
1.1	March '10	Editorial updates, update of requirements related to qualifications & use of mark. IEC reference for partial testing added.	
1.0	August '09	Initial release	

**Solar products and components  
Technical Document Ki – 0409**

<b>1. GENERAL.....</b>	<b>4</b>
1.1 APPLICATION.....	4
1.2 REFERENCE DOCUMENTS.....	4
<b>2. REQUIREMENTS FOR KIWA KQ SOLAR PRODUCTS AND COMPONENTS.....</b>	<b>5</b>
2.1 GENERAL.....	5
2.2 REQUIREMENTS TO THE KIWA KQ SOLAR PRODUCTS AND COMPONENTS.....	5
2.2.1. <i>Offering stage &amp; receiving the client order</i> .....	5
2.2.2. <i>Laboratory Test</i> .....	5
2.2.3. <i>Initial Factory Inspection</i> .....	6
2.2.4. <i>Kiwa KQ surveillance agreement</i> .....	6
2.2.5. <i>Kiwa KQ Solar products and components – Manufacturer documentation</i> .....	6
2.2.6. <i>Kiwa KQ Solar products and components – Marking</i> .....	6
2.2.7. <i>Kiwa KQ - Solar products and components - Certification</i> .....	7
2.3 THE USE OF THE KIWA KQ MARK.....	7
<b>3. REQUIREMENTS QUALITY SYSTEM FOR THE PRODUCTION OF SOLAR PRODUCTS AND COMPONENTS.....</b>	<b>8</b>
3.1 GENERAL.....	8
3.2 INTERNAL QUALITY CONTROL (OF THE MANUFACTURER).....	8
3.3 PROCEDURES AND OPERATION INSTRUCTIONS.....	8
3.4 EXTERNAL INSPECTION.....	9
<b>4. REQUIREMENTS RELATED TO THE QUALIFICATION OF STAFF.....</b>	<b>10</b>
4.1 GENERAL.....	10
4.2 QUALIFICATION REQUIREMENTS.....	10
<b>5. LIST OF REFERENCE STANDARDS.....</b>	<b>11</b>
<b>6. ANNEX I: KIWA CERTIFICATES.....</b>	<b>12</b>
<b>7. ANNEX II: ADDITIONAL REQUIREMENTS PER PRODUCTS.....</b>	<b>13</b>
7.1 ADDITIONAL REQUIREMENT FOR PV MODULES.....	13
7.1.1 <i>Integration to the chapter 2.2.1</i> .....	13
7.1.2 <i>Integration to the chapter 2.2.2</i> .....	13
7.1.3 <i>Integration to the chapter 2.2.5</i> .....	13
7.1.4 <i>Integration to the chapter 3.2</i> .....	13
7.2 ADDITIONAL REQUIREMENT FOR PV INVERTERS.....	14
7.2.1 <i>Integration to the chapter 2.2.2</i> .....	14
7.2.2 <i>Integration to the chapter 3.2</i> .....	14

## Solar products and components Technical Document Ki – 0409

### 1. General

The requirements specified in this Guideline (Technical Document) are applied by Kiwa Italy for any requests for release and / or maintenance of a certificate of products relating to solar products and components. In addition to the requirements contained in this Guideline, Kiwa Italy imposes further conditions on the general procedures for certification specified in regulations of general certification Kiwa Italy.

#### 1.1 Application

The release of a certificate, as requested to Kiwa Italy, will be performed based on the Guidelines (Technical Document) which are in force at the time of the request. In the event that reports are produced by testing laboratory / factory inspection showing that the products meet the requirements of this Guideline, it is needed to demonstrate that these reports are produced taken the following minimum standards for accreditation into consideration:

- IEC/ISO 17025 for test laboratory
- EN 45004 for the factory inspection services
- EN 45011 for the certification services

Kiwa Italy considers conformity of these accreditations by the certification issued by Accredia (under preparation) or any other entity who has signed with Accredia a mutual recognition agreement.

The scope of accreditation shall extend to all the examinations under this guideline. In case of failure to provide any certificate of accreditation, Kiwa Italy independently verify compliance with the standards of accreditation.

#### 1.2 Reference Documents

1)	Kiwa Italia – Product Certification – Release of Product Certification (PG-09 Rev. 02, Certificazione di Prodotto)
2)	Kiwa Italia – Product Certification – Inspections to the Product Certification (PG-10 Rev. 02, Audit - Certificazione di Prodotto)
3)	Kiwa Italia – Product Certification – Rules (RG-05 Rev. 00, Regolamento Certificazione di Prodotto)
4)	Technical Assessment Guideline for Kiwa KQ Certification (DT Ki – 0409) - Solar products and components
5)	Kiwa KQ solar products and components – Pricelist and template for quotations
6)	Kiwa Photovoltaic (PV) Certification Scheme - PV Panel Data Guide
7)	Kiwa Photovoltaic (PV) Certification Scheme – Template for the manufacturer declaration
8)	Kiwa Photovoltaic (PV) Certification Scheme – Template for subcontracting test laboratory
9)	Kiwa KQ solar products and components – Report factory inspection
10)	Kiwa Italia – Product Certification – Template for the Non-Conformity Report (RGS 030 Rev 2, Rapporto di Non Conformita Prodotto)
11)	Kiwa KQ solar products and components - Template for the Surveillance Agreement
12)	Kiwa KQ solar products and components - Template for the Certificates

## Solar products and components Technical Document Ki – 0409

## 2. Requirements for Kiwa KQ Solar products and components.

### 2.1 General

This chapter outlines the requirements which shall be met for Kiwa KQ Solar products and components.

### 2.2 Requirements to the Kiwa KQ Solar products and components.

With reference to procedure PG-09 the following is applicable for the certification of Kiwa KQ Solar products and components:

#### 2.2.1. Offering stage & receiving the client order

During the offering stage the following documents shall be used:

- 1) Kiwa KQ Solar products and components – template of the offer
- 2) Kiwa KQ Solar products and components – price list

Contract review is performed by the Product Manager for the Kiwa KQ Solar products and components. The contract review includes the check on the sampling according to IEC 61040/prototype.

An integration of this chapter is given in the Annex II of this TD.

#### 2.2.2. Laboratory Test

The Solar products and components shall be conducted to the tests as specified in the standards as reported in Annex II of this TD.

The Solar products and components used for testing can be selected by the manufacturer taken the following conditions into considerations:

I: the manufacturer shall declare that the manufacturing process of the products used for testing shall be according the process applicable for the mass production of the Solar products and components

II: the manufacturer shall declare that the Solar products and components are either

- Prototypes or
- That the sampling procedure according IEC 60410 has been used to select the samples.

The tests shall be performed preferably by an accredited test laboratory according to ISO/IEC 17025 or by a laboratory which has proven to Kiwa to be able to work on this level. The ISO/IEC 17025 accreditation shall be performed by an EA/ILAC recognized accreditation body. Prior subcontracting testing work to a test laboratory Kiwa Italy shall review the laboratory and conclude that the laboratory is competent to perform the work in accordance to this guideline.

The test laboratory receives the following documents:

- 1) Subcontracting order, including Annex I
- 2) The documentation of the product.

Kiwa remains the right to perform a topic audit to the test laboratory and/or perform witness testing.

## Solar products and components Technical Document Ki – 0409

The test laboratory delivers a test report according in which the test results are presented.

### **2.2.3. Initial Factory Inspection**

In parallel to the type testing Kiwa Italia will perform an Initial Factory Inspection of the manufacturing sites. During the initial factory inspection the quality management and factory production testing related to the mass production is audited.

The following documents are applicable during the audit:

- 1) PG-10, Rev. 02; Audit for Product Certification
- 2) Kiwa Factory Inspection Report which including the Observations (RGS 029)
- 3) Reports of non-compliance of the product (RGS 030)

The Initial Factory Inspection shall be performed by auditors which are qualified according EN 45011. Prior subcontracting the Initial Factory Inspection to an external auditor Kiwa Italy shall review the competences of the related auditor / audit team and conclude that the qualification requirements according ISO 19011 are met (see clause 4 for further details). Kiwa Italy intends to use Kiwa staff to perform the Initial Factory Inspection but may use external auditors as well. Kiwa remains the right to attend the Initial Factory Inspection or parts of it. The auditor / audit team delivers a Factory Inspection report.

To take a positive certification decision the Initial Factory Inspection shall:

- I: All major non-conformities shall be closed by the auditor / audit team;
- II: Corrective measures to resolve minor non-conformities shall be approved by the auditor / audit team. The verification of correct implementation of the corrective measure shall find place during the next scheduled audit.

Further details are given in clause 3 of this Guidelines.

### **2.2.4. Kiwa KQ surveillance agreement**

The Kiwa KQ surveillance agreement specifies the right and duties of both the agreement holder (contract holder) and Kiwa Italy to maintain the Kiwa KQ certification based upon:

- I: results of the annual factory inspection
- II: result of the annual inspection of the product

The Kiwa KQ surveillance agreement, according to the Kiwa template, shall be confirmed and signed by both parties,

### **2.2.5. Kiwa KQ Solar products and components – Manufacturer documentation**

One set of instructions shall be supplied with each consignment, written in the language(s) of the country into which the devices will be delivered. They shall include all relevant information of the panels, as reported in Annex II of this TD.

### **2.2.6. Kiwa KQ Solar products and components – Marking**

The products shall be marked clearly and permanently with at least the following information:

- Kiwa Solar Marks (see clause 2.3)

## Solar products and components Technical Document Ki – 0409

### 2.2.7. *Kiwa KQ - Solar products and components - Certification*

The Kiwa KQ Solar products and components Certificate can be granted based upon the positive review of the below mentioned aspects:

- I: Laboratory test
- II: Initial Factory Inspection
- III: Manufacturer Documentation
- IV: Signature of the Kiwa KQ surveillance agreement

Kiwa Type Testing Certificate can be granted based upon the positive review of the below mentioned aspect:

- I: Laboratory test

The review is performed by a Kiwa Certification Officer who is qualified as such for Kiwa KQ Solar products and components Certification.

The template of the Kiwa KQ Solar products and components is given in Annex I.

### 2.3 *The use of the Kiwa KQ Mark*

Based upon the granting of the Kiwa KQ Certification the manufacturer is obliged to affix the Kiwa KQ Mark on each produced product. The Kiwa KQ Mark shall be part of the type label of the product, be presented in full color or in black-white and show as the following.



The dimensions of KIWA logo may be increased or decreased uniformly, keeping the ratio of the size and if the writing remains legible.

The logo may be used only for the products certified by Kiwa, on letterhead, advertising material and / or promotion. Can not be used in a misleading manner and can not be interpreted as a certification system or references to other products not be tested by KIWA.

Kiwa reserves the right to take legal action to protect its image if the logo was used in a manner inconsistent with the contractual and / or to bring disrepute to the image Kiwa.

## Solar products and components Technical Document Ki – 0409

### 3. Requirements quality system for the production of Solar products and components

#### 3.1 General

This chapter outlines the requirements that must be satisfied by the quality system of the manufacturer and the methods used by Kiwa Italy for the evaluation of it.

#### 3.2 Internal quality control (of the manufacturer)

As part of its quality system, the manufacturer must have a scheme of internal quality control (IQC scheme). This IQC scheme shall include:

- the aspects that are subject to inspection
- Inspection methods adopted
- the frequency of inspections
- the procedures for recording and archiving of results.

The manufacturer shall prepare and adopt a plan for internal quality control of its production, as defined in the following table, and make it available to the inspector during the performance of audits.

Subject	Aspect	Method	Frequency	Registration
Incoming control: - Row material - Semi-finished products	Material Certificates Dimensions Appearance			
Production process	Procedures Work instructions Used apparatus			
Finished products	See Annex II of this TD			
Status of measuring & test equipment	List of equipment Calibration reports Maintenance reports			
Internal transport	Storage Package Identification Marking			

#### 3.3 Procedures and operation instructions

The manufacturer shall demonstrate a procedure for:

- A. the management of semi-finished or finished products discarded or subjected to repairs;
- B. management of complaints about the products and / or services provided.
- C. work instructions and records of inspection used.

## Solar products and components Technical Document Ki – 0409

### *3.4 External inspection*

The quality system of the manufacturer will be assessed by Kiwa Italy at least according to the issues mentioned in the Kiwa Regulations for the Certification of the Product. Upon ratification of this Guideline for evaluation, this frequency was set at 1 inspection per year.

## Solar products and components Technical Document Ki – 0409

### 4. Requirements related to the qualification of staff

#### 4.1 General

This chapter contains the requirements regarding the qualification of staff involved in the activity of Kiwa KQ Solar products and components Certification.

#### 4.2 Qualification requirements

- Sales representative and back office staff: Read & Understand this Technical Document
- Testing staff: according to EN 17025
- auditor & lead auditor: according to ISO 19011
  - successfully completed secondary education
  - auditor training of 40hrs
  - 20 days of auditing experience
  - 3 years of appropriate practical workplace experience in the Solar products and components or
  - 3 years of appropriate practical workplace experience in Testing, Certification and Factory Inspection of Energy using Products and receiving:
    - Specific training in Solar products and components sector which includes manufacturer production process and related quality aspects.
    - Successfully complete 3 factory inspections under supervision of a qualified auditor.
  - Proven personal competences as laid down in the Staff appraisal requirements of Kiwa Italia
- certification officer:
  - successfully completed secondary education
  - auditor training of 40hrs
    - 3 years of appropriate practical workplace experience in Product Certification for Energy related systems and specific training in Solar products and components.
  - Experiences as a manager for the minimum of 1 year
  - Proven personal competences as laid down in the Staff appraisal requirements of Kiwa Italia (manager)
  - Detailed knowledge of certification regulations and in particular the Kiwa KQ Solar products and components Certification Scheme.
  - A clear view on the certification items within the Solar sector and understanding of the development of standards for Solar products and components testing and certification.

## Solar products and components

### Technical Document Ki – 0409

#### 5. List of reference standards

Number	Title
UNI-EN 17020: 2004	General criteria for the operation of various types of bodies performing inspections (ISO/IEC 17020:1998)
UNI-EN 45011: 1998	General requirements for bodies operating product certification systems (ISO/IEC Guide 65: 1996)
UNI-EN-ISO/IEC 17025: 2005	General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025: 2005)
EN-IEC 61215: 2005	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval (IEC 61215: 2005)
EN-IEC 61646: 2008	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval (IEC 61646: 2008)
EN-IEC 61730-1: 2007	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction (IEC 61730-1: 2004)
EN-IEC 61730-2: 2007	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing (IEC 61730-2: 2004)
IECEE Retesting Guidelines	Product or Process Modifications Requiring Limited CBTL Retesting to Maintain Certification for - IEC 61215:1993 Ed. 1.0 and IEC 61215:2005 Ed. 2.0 Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval. - IEC 61646:1996 Ed. 1.0 Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval
IECEE Retesting Guidelines	Product or Process Modifications Requiring Limited CBTL Retesting to Maintain Safety Certification for - IEC 61730-1:2004 Ed. 1.0 and IEC 61730-2:2004 Ed. 1.0 Photovoltaic module safety qualification - Part 1: Requirements for construction and Part 2: Requirements for testing
ENEL - Dicembre 2009 Ed. 1.1 - 7/244	Guida per le connessioni alla rete elettrica di ENEL distribuzione
VDE V 0126-1-1 Released 2006-02	Automatic disconnection device between a generator and the public low-voltage grid

**Solar products and components  
Technical Document Ki – 0409**

**6. ANNEX I: KIWA CERTIFICATES**

**Name of Certificate**

**EN-IEC 61215 / EN-IEC 61730-2 Type Testing**

**EN-IEC 61646 / EN-IEC 61730-2 Type Testing**

**EN-IEC 61215 / EN-IEC 61730-2 Product Certificate**

**EN-IEC 61646 / EN-IEC 61730-2 Product Certificate**

**KQ Certificate for inverter**

**Solar products and components  
Technical Document Ki – 0409**

**7. ANNEX II: ADDITIONAL REQUIREMENTS PER PRODUCTS**

**7.1 Additional requirement for PV modules**

**7.1.1 Integration to the chapter 2.2.1**

During the preparation stage the client shall complete and sign the following documents:

1. PV Panels data guide
2. Template of the Manufacturer’s declaration

The documents shall be received and checked on completeness by the Certification Officer.

**7.1.2 Integration to the chapter 2.2.2**

Depending on the applied technology one or more of the following standards are applicable:

- I: Crystalline silicon terrestrial (PV) modules test in according to EN-IEC 61215
- II: Thin-film terrestrial (PV) modules in according to EN-IEC 61646
- III: PV module safety qualification (class II) in according to EN-IEC 61730-2
- IV: IEC60068 Retesting Guidelines: Product or Process Modifications Requiring Limited CBTL. Retesting to Maintain Certification for EN-IEC 61215, EN-IEC 61646 and Safety Certification for EN-IEC 61730-2

**7.1.3 Integration to the chapter 2.2.5**

One set of instructions shall be supplied with each consignment, written in the language(s) of the country into which the devices will be delivered. They shall include all relevant information of the panels, in particular:

- electrical data;
- dimensions;
- datasheet of all single components;
- instruction for mounting.

**7.1.4 Integration to the chapter 3.2**

The manufacturer shall prepare and adopt a plan for internal quality control of its production, as defined in the following table, with reference to the ICQ related to finished products, and make it available to the inspector during the performance of audits.

Subject	Aspect	Method	Frequency	Registration
Finished products: Photovoltaic Panels	The output power of the panel shall be in accordance to the specifications - Clause 20 of the checklist - Control of output power			

## Solar products and components Technical Document Ki – 0409

### *7.2 Additional requirement for PV inverters*

#### **7.2.1 Integration to the chapter 2.2.2**

Depending on the applied technology one or more of the following standards are applicable:

- I: ENEL - Dicembre 2009 Ed. 1.1 - 7/244: guida per le connessioni alla rete elettrica di ENEL distribuzione
- II: VDE V 126-1-1 Released 2006-02: Automatic disconnection device between a generator and the public low-voltage grid

#### **7.2.2 Integration to the chapter 3.2**

The manufacturer shall prepare and adopt a plan for internal quality control of its production, as defined in the following table, with reference to the ICQ related to finished products, and make it available to the inspector during the performance of audits.

Subject	Aspect	Method	Frequency	Registration
Finished products: Inverters	Insulation test on the basis of EN 60146-1-1			