

 GOVERNMENT OF DUBAI	<b>Organization/Unit:</b> إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Document Title:</b> Specific Rules for FA Certification of Solar Collectors as per BS EN 12975-1: 2006 A1: 2010	عنوان الوثيقة:	
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Issue Date	Rev. No.	Summary Of Amendments
21-02-2013	0	Second draft
17-03-2013	0	Third Draft
22-04-2013	0	Final Draft
20-05-2013	1	Issue for use
13-10-2014	2	Amended clauses [1.1.2], [1.3.2], and [4] to make reference to Special rules
08-03-2015	3	Amended clauses [2.4.1], [2.4.2] and [4] related to testing and surveillance
10-12-2016	4	Including provisions for certification of OEM and OBL
17-03-2019	5	Updating format as per new DM template and new DM logo

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## 1. GENERAL

### 1.1 INTRODUCTION

1.1.1 This document prescribes the specific rules for the implementation of the DM Third Party Product Certification System Through Factory Assessment as applied to the specific product(s) identified herein, taking into consideration the applicable normative references and standard specifications.

1.1.2 The applicant shall comply with these specific rules, and to those already mentioned in (1) DM-DCLD-RD-DP21-2001 (IC) "General Rules for DM Third Party Product Certification System Through Factory Assessment" and (2) DM-DCLD-RD-DP21-2006 (IC) "Special rules for the certification of solar water heater collectors and registration of solar water heating systems as per the provisions of DM Circular (183) 2011"

### 1.2 SCOPE

1.2.1 This specific rule covers requirements on durability (including mechanical strength), reliability, and safety for liquid heating solar collectors. It also includes provisions for evaluation of conformity to these requirements.

1.2.2 This specific rule does not cover collectors in which the thermal storage unit is an integral part of the collector to such an extent, that the collection process cannot be separated from the storage process for the purpose of making measurements of these two processes.

### 1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

1.3.1 Product Name: Solar Collectors for solar heating system

1.3.2 Applicable standard/Normative reference:

BS EN 12975-1:2006 +A1: 2010 – Thermal solar systems and components – Solar Collectors – Part 1: General requirements

BS EN ISO 9806: Solar energy – Solar thermal collectors – Test methods

DM-DCLD-RD-DP21-2001 (IC) General rules for third party product certification system through factory assessment

DM-DCLD-RD-DP21-2006 (IC) Special rules for the certification of solar water heater collectors and registration of solar water heating systems as per the provisions of DM Circular (183) 2011

1.3.3 Additional References:

ISO 9001 - Quality Management System – Requirements

ISO 19011 - Guidelines for Quality and Environmental Management System Auditing.

### 1.4 DEFINITION OF TERMS

In addition to the definitions given in BS EN 12975-1:2006 +A1: 2010, EN ISO 9488, DM-DCLD-RD-DP21-2001 (IC), the following shall also apply:

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- 1.4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized / approved by the DM Certification Body.
- 1.4.2 Independent Test – test performed or conducted by an Independent Testing Laboratory
- 1.4.3 Standard Specification – BS EN 12975-1:2006 +A1: 2010 – Thermal solar systems and components – Solar Collectors – Part 1: General requirements
- 1.4.4 Factory Production Control System (Product Quality Assurance Plan) - a quality plan as per RD-DP21-2084 (IC), used by the factory to ensure continuous compliance of the certified product.
- 1.4.5 QMS – Quality Management System aligned with the requirements of ISO 9001 Standard.
- 1.4.6 Applicant/Client – Any company with legal entity, which applies for certification of the collectors and is responsible for fulfillment of all certification requirements and got the right to use DCL Conformity Mark for the certified solar collectors for solar heating system. This applicant may (OEM) or may not be (OBL) the manufacturer of the certified collectors.
- 1.4.7 OEM – is the original equipment manufacturer (OEM) of the collector that applies for certification and granted the right to use DCL Conformity Mark after satisfactory fulfillment of the certification requirements. This term is used when the certificate holder has a contract/agreement with another company act as an OBL.
- 1.4.8 OBL– is own brand labeling (OBL), a company re-labeling the collector with valid DCL certification under its own company name and product name (brand) without making any changes to the collector designs and specifications originally certified by DCL to the respective OEM.

## 2. REQUIREMENTS FOR CERTIFICATION

### 2.1 APPLICATION

- 2.1.1 Applicant shall apply to Dubai Central Laboratory through Product Conformity Assessment Section – PCAS for the authorization to use the DCL Conformity Mark.
- 2.1.2 Application forms shall be filled-up by the applicant and submitted to DCL together with the following documents
- Trade License
  - Complete product description and specifications
  - Brief Description of Manufacturing Process (if the applicant is the manufacturer or the OEM)
  - Copy of the Quality Manual (Controlled Copy)
  - Vicinity Map and Factory Layout (if the applicant is the manufacturer or the OEM)
  - Valid Certification to ISO 9001 (If available)
  - List of personnel and their designation

### 2.2 FACTORY OPERATION

#### 2.2.1 Quality Management System

Applicant shall have a Quality Management System that is aligned to the requirements of ISO 9001 standard. NOTE: Certification to ISO 9001 is not a mandatory requirement.

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## 2.2.2 Laboratory

If the applicant is the manufacturers/OEM of Solar Collectors for solar heating system; then it shall have a quality assurance laboratory to carry out factory production control testing to ensure that the products comply with the requirements of the standard specification.

As a minimum requirement, the laboratory shall have the following testing equipment:

- Internal pressure (leakage) tester
- Dimensional test equipment

## 2.3 INITIAL AUDIT/ REVIEW

### 2.3.1 **The applicant is the manufacturer/OEM of Solar Collectors for solar heating system**

2.3.1.1 DCL duly authorized representatives shall conduct an audit of the Applicant's quality Management system to verify its compliance with the requirements of ISO 9001.

NOTE: An independent certification to ISO 9001 issued by a QMS certification body recognized by DM may be considered as having satisfied this requirement; however, the DM Certification Body reserves the right to carry out verification audit to confirm that the factory is in compliance with the QMS requirements.

2.3.1.2 Verification audit shall be conducted by designated audit team based on ISO 19011 – Guidelines for Quality and Environment Management System Auditing.

2.3.1.3 Once certified; the manufacturer/OEM must have an authorized supplier in Dubai with valid trade license issued by DED and registered with DCL.

### 2.3.2 **The applicant is not the manufacturer (i.e OBL) of the Solar Collectors for solar heating system and wish to be the certificate holder (certificate under his name)**

#### 2.3.2.1 **OBL with OEM already certified;**

- 2.3.2.1.a DCL duly authorized representative shall conduct a full review of the submitted documents as per clause [2.1.2] in addition ensure the following:-
- The respective manufacturer/OEM of the collector have a valid DCL certificate.
  - Collector designs technical data sheet and bill of materials are complying with the ones originally certified by DCL for the respective manufacturer/OEM.

2.3.2.2.b DCLD reserves the rights to test the collectors which are labeled by the OBL; if deemed necessary. This can be arranged thru a third accredited inspection body; or sampled by DCL representative.

#### 2.3.2.2 **OBL with OEM not certified by DCL;**

- If the respective manufacturer/OEM of the collector is not certified by DCL and the OBL still wishes to apply on his behalf as an OEM certificate holder; then DCL shall conduct audit on the OEM as per clause [2.3.1] above (Note: requirements of clause [3.2.2] below is also applicable in this case).

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- After the OEM completes the process and is granted the DCL certificate, the OBL application shall be processed according to [2.3.2.1]

2.3.2.3 In all cases the OBL – once certified- shall have an authorized supplier in Dubai with valid trade license issued by Dubai Economic Department (DED) and has already been registered with DCL.

## 2.4 PRODUCT EVALUATION (applicable only to the manufacturer/OEM)

### 2.4.1 Products not covered by Solar Keymark Certification (or its equivalent): (see also clause [2.4.2])

#### 2.4.1.1 Sampling and Testing

- Test samples shall be taken for initial testing from the current production or from the warehouse. Identification of samples for initial testing should be on at least 10 collectors that are produced with the same materials and the same manufacturing technologies / process.
- Two sets of samples per type shall be taken randomly. The first set will be sent directly to PCAS approved independent testing laboratory and the second set will be kept by the manufacturer as reference for future use.
- Test sample(s) for independent test shall be identified and signed in the presence of DCL representatives and shall be submitted to PCAS approved independent testing laboratory. Likewise, samples to be submitted for independent test shall be accompanied by a collector identification and set of drawings as per clause 7.1 of BS EN 12975-1. The set of drawings shall describe the collector's dimensions and structure along with a list of materials used in the collector and important physical and optional properties as well as the solar description in D.2 of EN 12975-2 or ISO 9806.
- If the manufacturer produces the same collector in different lengths and/or widths (the only difference between the two collectors is the length and/or width), the collector is considered the same subtype. Hence, only one sample of the smallest and one sample of the largest module shall be taken as samples and tested. The largest module shall be subject to all the tests required in BS EN 12975-1 clause [5.2], and the smallest shall be subject to a thermal performance test (clause 6 of EN 12975-2) or as per ISO 9806.
- Durability and reliability tests shall be carried on collectors representing the major features of the same sub type (collector sub type with collectors having several glass covers separated by bars).
- Custom build collectors (built in, roof integrated collectors that do not comprise to factory made modules and are assembled directly on the place of installation) are handled as described in BS EN 12975-1, paragraph 1 "...a module with the same structure as the ready collector tested. The module gross area in the case of custom built collectors shall be at least 2m<sup>2</sup>". The manufacturer has to explain the conformity of the test module with the normal production and must provide a detailed description of the components. Very large collector modules may be treated as the custom built one, see above, if testing of the full size module is not possible.

#### 2.4.1.2 Product Evaluation Criteria

- The product shall conform to the requirements as specified in clauses 5.3, 6, Annex A, and Annex B of the standard specification, BS EN 12975-1
- The following tests shall be carried out as per BS EN 12975-2 or ISO 9806

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and results shall reflect the term “no major failure” as pass criteria.

- i. Internal pressure for absorber
- ii. High temperature resistance
- iii. Exposure
- iv. External thermal shock
- v. Internal thermal shock
- vi. Rain penetration (for glazed collectors only)
- vii. Mechanical load
- viii. Thermal performance
- ix. Freeze resistance (if declared)
- x. Stagnation temperature
- xi. Final inspection

- c. The materials and design for the product shall be in accordance with Annex A of BS EN 12975-1
- d. The manufacturer of Solar Collectors for solar heating system shall have its products labeled as per clause 7.2 of BS EN 12975-1
- e. The manufacturer of Solar Collectors for solar heating system shall provide an installer instruction manual as per clause 7.3 of BS EN 12975-1

#### 2.4.2 Special Provisions for Collectors that are covered by Solar Keymark Certification (or its equivalent)

2.4.2.1 For collectors that are already covered by Solar Keymark Certification (or scheme equivalent to Solar Keymark), the testing of the collector shall be as follows:

- a. DCL Audit Team shall review the current Solar Keymark Certificate and the collector design and specifications to ensure that the Certificate is still valid and there are no changes in the design of the collector being produced.
- b. At least one sample (from among the families of collector to be certified) shall be selected and sent to an independent laboratory for full testing as required by the standard. The Lead Auditor shall decide as to how many collectors will be subjected to full testing.
- c. Other types or models or collector will be included in the Scope of DCL Certification, provided they have current/valid Solar Keymark Certificate and valid Test Report from accredited laboratory at the time of audit.

2.4.2.2 After granting the DCL Certification, during annual surveillance visits, DCL Audit Team shall review the continuing validity of the Solar Keymark Certificate and that there are no changes in the design and specifications of the DCL certified product. If there are no modifications and changes to the Solar Keymark Certificate, no further testing will be conducted

2.4.2.3 At every 5<sup>th</sup> year of surveillance visit, DCL Audit Team will select a new sample (other than the one previously tested during initial audit) from among the collectors within the scope of the DCL Certification and send it to independent laboratory for full testing.

### 3. GRANTING OF THE DCL CONFORMITY CERTIFICATE

3.1 CONDITIONS FOR GRANTING THE DCL CONFORMITY CERTIFICATE(Manufacturer/OEM)

3.1.1 When the results of the manufacturer/OEM audit (clause 2.3.1 for OEM) and product evaluation (clause

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2.4) show conformity to the requirements specified in the General Rule and Specific Rule, the authorization to use the DCL Conformity Mark shall be issued to the manufacturer/OEM for the type(s) and size range of the products tested.

3.1.2 The manufacturer/OEM shall agree with the DM Certification Body for the preparation and implementation of a product quality assurance plan to ensure continuing compliance with the Standard Specifications and the requirements of this certification scheme. It shall consist of (1) an internal product quality assurance plan, and (2) an independent testing plan.

3.1.3 Factory Production Quality Control System (Internal Product Quality Assurance Plan)

The manufacturer/OEM shall implement a factory production control system (internal product quality assurance plan) which shall conform to DM-DCLD-RD-DP21-2084 (IC).

The plan shall take into consideration the production process, the volume of production, the criticality of the test to be specified, and other relevant factors.

3.1.4 Independent Testing Plan

The manufacturer/OEM shall agree to an independent testing plan to be carried out on samples which are collected in accordance with DM-DCLD-RD-DP21-2096 (IC) – Surveillance of Licensed Establishments under the Factory Assessment Scheme, and implemented by the DM Certification Body. The cost of testing under the independent testing plan shall be borne by the factory.

3.2 CONDITIONS FOR GRANTING THE DCL CONFORMITY CERTIFICATE (TO THE OBL)

3.2.1 When the result of (clause 2.3.2) shows conformity to the requirements specified in the General Rule and this Specific Rule, the authorization to use the DCL Conformity Mark shall be issued to the OBL for the type(s)/Models and size range of the collectors.

3.2.2 OBL certificate have to be issued always on the basis of DCL OEM certificate. It is not possible to issue an OBL certificate on the basis of another OBL certificate.

3.2.3 OBL certificate shall only be valid whenever the original DCL OEM certificate is still valid. It is directly linked to the positive surveillance assessment on the respective factory/OEM and that there are no changes in the design and specifications of the collectors for which DCL conformity mark was granted, in addition to any other related certification requirements.

3.3 ISSUANCE OF DCL CERTIFICATE OF CONFORMITY

If the conditions mentioned above in clause 3.1 (manufacturer/OEM of Solar Collectors for solar heating system) and in clause 3.2 ( for OBL) have been complied, the manufacturer/OEM and the OBL shall be issued a DCL Certificate of Conformity and a Scope of Certification that covers the type(s) and size of the collectors that are certified.

3.4 RESPONSIBILITIES OF THE CLIENT

3.4.1 Every client shall ensure that his product, for which the conformity certificate has been issued, conforms at all times to the requirements of the General Rule and Specific Rules and shall maintain to the satisfaction of DCL, a system of quality control including inspection and testing.

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- 3.4.2 The client shall give the duly authorized representative(s) of DCL, access during working hours, without prior notification, to the premises/factory where certified product is manufactured/stored, for the purpose of evaluating the materials, production processes, finished products, quality assurance facilities, records and others in accordance with the requirements of the scheme.
- 3.4.3 The client shall inform the DM Certification Body-PCAS in writing of any change of management, transfer of plant site, modification in the product, manufacturing process or factory quality management system.
- 3.4.4 Upon transfer of plant site, the conformity certificate shall be deemed valid only after factory and product audit at the new site has been satisfactorily completed.
- 3.4.5 Any infraction stated in the Terms and Conditions for the use of DCL Conformity Mark shall constitute sufficient grounds for suspension, withdrawal and cancellation of the conformity certificate against a client.
- 3.4.6 Any dispute that may arise in connection with the Terms and Conditions of the DCL Mark shall be settled in accordance with DM-DCLD-IMS-RD-08 Appeals, Disputes, and Complaints Procedure.
- 3.4.7 The client shall pay all applicable fees related to the certification process.

#### 3.5 USE OF THE DCL CONFORMITY MARK

- 3.5.1 The design and use of the DCL Conformity Mark shall be in accordance with the Terms and Conditions for the Use of the DCL Conformity Mark, DM-DCLD-IMS-RD13
- 3.5.2 The client shall submit samples of tag showing the DCL Conformity Mark, for approval by the DM Certification Body- PCAS.
- 3.5.3 The authorization to use the DCL Certification Mark is non-transferable.

#### 4. SURVEILLANCE

- 4.1 DM Certification Body- PCAS. shall carry out periodic factory surveillance to ensure consistent compliance with the requirements of this certification scheme. Surveillance shall be carried out according to the provisions of DM-DCLD-RD-DP21-2096 (IC).
- 4.2 Market surveillance shall be in accordance with the provisions of clause [7] of DM-DCLD-RD-DP21-2006 (IC) "Special rules for the certification of solar water heater collectors and registration of solar water heating systems as per the provisions of DM Circular (183) 2011".
- 4.3 Surveillance of manufacturers/OEM/OBL that are covered by Solar Keymark Certification shall take into consideration the provisions mentioned in Clause [2.4.2]

#### 5. FEE SCHEDULE

- 5.1 The client shall pay the applicable fees and charges related to the granting of the certification and use of the DCL Conformity Mark in accordance with DM-DCLD-RD-DP21-2083 (IC) "Fee structure for certification of collectors for solar heating systems".

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