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CERTIFICATION MANUAL

SOLAR PROCESSES



Program No.: QB 39 (Ex CSTBat14)

Version 13

Date of 1st application: 23rd April 2018

The present Certification Manual was approved on september 1st 2021. It may be fully or partially revised by EUROVENT CERTITA CERTIFICATION (ECC), after consultation with interested parties.

This Certification Manual must be used together with the current version of the common Certification Manual for QB programs managed by ECC. It is therefore necessary to have read the requirements of common Certification Manual for QB programs managed by ECC, beforehand because these manuals are inseparable from each other.

It cancels and replaces any previous version.

Amendments

First date of application of the certification manual: 23 April 2018

Modified sections	Revision no.	Date	Modification
Part 2	13	2021	Revision of the QB labelling on the product
Part 2	13	2021	Addition of specific controls on the electric power supplies.
Part 2	13	2021	Addition of the QB39 certification campaign calendar.
All		2021	Update of the paragraphs of the QB General requirements. Removal of letters of request.
All	12	30/01/2020	Revision of the scope of certified products by adding hybrid solar technology
All	12	30/01/2020	General layout of the document
Part 1	12	30/01/2020	Update of sampling procedure
Part 1	12	30/01/2020	ECC website modification
Part 1	12	30/01/2020	Addition of an audit body
All	11	16/04/2018	Revision of the layout of the certification manual, consisting now of the common provisions of QB and the technical reference QB 39 (replacing the technical requirements CSTBT 14)
All	11	16/04/2018	Update of ISO 9001 (2008 à 2015)
All	11	16/04/2018	Updated ISO 9806 + "Adding dynamic test Method"

- the Program committee has defined the latest due date for the replacement of the actual CSTBAT 14 Mark by the QB Mark
- for the marking of certified products, the packaging of products and the documents accompanying the products: **January 1, 2019**
- for all advertising or commercial documents: **January 1, 2019**.

The marking rules during this transitional period are defined in paragraph 2.4.2. of the certification manual of QB programs managed by EUROVENT CERTITA Certification: Common rules.

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1. PART 1 - GENERAL INFORMATION

1.1 SCOPE

This certification covers the following "Solar Thermal products":

- ✓ **Solar thermal collectors** in destination of HVAC engineering installations (flat-plate collectors and vacuum tubes collectors),
- ✓ domestic solar water heaters (DSWH) without circulator pump or transfer unit: **thermosiphons and self-storing collectors.**
- ✓ **Air flow solar collectors** intended for the realization of installations of climatic engineering.
- ✓ **Hybrid photovoltaic / thermal solar collectors** for climatic engineering installations.

These are installations in which the circulation of the heat transfer fluid between the solar collector and the storage tank takes place only through changes in the density of such fluid. In the context of self-storing collectors, the solar collector also stores heat through the water.

This certification does not cover forced circulation domestic solar water heaters or combined solar systems (CSS).

1.2 CERTIFIED CHARACTERISTICS

The term "certified characteristic" applies to any technical characteristic whose content is controlled under the QB mark.

The certified characteristics are as follows:

- **Thermal solar collectors:**
 - The aperture area (A_a) and gross surface (A_G)
 - The thermal characteristics (η_0 , a_1 and a_2) in relation to the aperture area and gross area of the solar collector.
 - The table of power outputs supplied for three irradiances (400, 700 and 1.000 W/m²) and three temperature gaps (10, 30 and 50 K).
- **Domestic solar water heaters (thermosiphons and self-storing collectors):**
 - The nominal volume of the storage tank (V_n),
 - The aperture area of the solar collector(s) in the system (A_a),
 - The thermal characteristics (identified parameters) (A_c^* , U_c^* , U_s and C_s)
 - Domestic solar water heaters (thermosiphons and self-storing collectors: the production (expressed as kWh/year) corresponding to a given couple "requirements value/nominal volume". This production will be given for two meteorological stations: Gillot (Réunion island) for the French Overseas Departments and Communities (DOM TOM) and Nice for European France.

Note: The thermal characteristics of the varianting designs of domestic solar water heaters are estimated by calculation. *Appendix 1* gives the empirical formulas applied to obtain such thermal characteristics compared with the basic model tested.

- **Air flow solar collectors:**
 - The aperture area (Aa) and gross surface (AG)
 - The table of power outputs supplied for three irradiances (400, 700 and 1.000 W/m²) for the three air flows indicated in the technical assessment.
- **Air flow solar collectors:**
 - The aperture area (Aa) and gross surface (AG)
 - The table of power outputs supplied for three irradiances (400, 700 and 1.000 W/m²) for the three air flows indicated in the technical assessment.
- **Hybrid solar collectors:**
 - The aperture area (Aa) and gross surface (AG)
 - The thermal characteristics (η_0 , a1 and a2) in relation to the aperture area and gross area of the solar collector.
 - The table of power outputs supplied for three irradiances (400, 700 and 1.000 W/m²) for the three air flows and speeds indicated in the technical assessment.

These certified characteristics are evaluated under the responsibility of EUROVENT CERTITA CERTIFICATION, using the following ways of control:

	Admission	Surveillance continue
<p>Production process audit by a qualified technical auditor</p> <ul style="list-style-type: none"> - Examination of the inspections and tests performed on the product: raw materials, production, finished goods - Examination of the "records" in which the results of the inspections and tests are logged, - Examination of the quality control provisions: metrology, packaging, storage, traceability, product marking, handling of non-compliant products, Claims. 	Yes	<p>Yes</p> <p><i>Frequency of production plant audits: 1 annual audit</i></p> <p><i>Frequency of audits distributor (reseller): 1 audit every 2 years</i></p>
<p>Tests campaigns are performed by a laboratory recognized by the certifying body (independent and competent)</p> <ul style="list-style-type: none"> - Sampling is done by the certifying body or the manufacturer and this is done either on the site of the applicant / holder or in the market. - Sampling sheet is sent by the certifying body to the applicant / holder. 	Yes	<p>Yes</p> <p><i>Frequency:</i> Every 2 years, a testing is done for each holder of a certificate, for each type of products</p>

1.3 STAKEHOLDERS

The list of organizations below may be revised or completed by the certifying body.

1.3.1 AUDIT BODY

Audits of plants and eventually places of use, after-sales service, etc. are performed by the following structure, called the auditing body:

EUROVENT CERTITA CERTIFICATION SAS

48/50 rue de la victoire

F- 75009 PARIS

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www.eurovent-certification.com

AENOR

Genova, 6

28 004 MADRID

Espagne

Tel: + 34 914 326 000

1.3.2 TEST BODY/LABORATORY

The follow-up tests on samples picked-up by the auditors during audits are carried out on EUROVENT CERTITA CERTIFICATION's request in the laboratories below, as laboratories for QB39 certification:

CSTB - Centre Scientifique et Technique du Bâtiment

290 Route des Lucioles - BP 209

06904 Sophia-Antipolis

CETIAT

25 Avenue des Arts

69100 Villeurbanne

CESP – UPVD Laboratoire d'essais et d'étalonnages (1)

Rambla de la thermodynamique – Tecnosud

66100 Perpignan – France

(1) Only for collectors

2. PART 2 - REQUIREMENTS OF THE REFERENCE STANDARD

2.1 REFERENCE DOCUMENTS

2.1.1 STANDARDS

2.1.1.1 Product standards and test standards

The procedures for conducting the tests are detailed in paragraphs 3.1.3.3 and 3.2.1.2.

The applicable standards are the following (non-exhaustive list):

NF EN 12975-1 + A1: 2010, Solar thermal installations and their components - Solar collectors - Part 1: General requirements

NF ISO 9806: 2017, Solar energy - Solar thermal collectors - Test methods

NF EN 12976-2: 2017, Solar thermal installations and their components
Prefabricated installations in plants- Part 2: Test methods

NF EN ISO 9488: 2000, Solar energy – Vocabulary

ISO 9459-5: 2007, Solar heating - Sanitary water heating system - Characterization of system performance through whole system testing and computer simulation

2.1.1.2 Standards for the quality management system

NF EN ISO 9001: 2015, Quality Management Systems – Requirements

2.1.2 ADDITIONAL TECHNICAL SPECIFICATIONS

In addition to the requirements set out in the previous paragraphs, the products must comply with the additional specifications defined in the following documents:

- Technical Assessments ("*Avis technique*" in French) or any other technical evaluation of the construction process (production chain, design and construction, which leads to the transformation / use of a product / service for part of the build) including the product and / or service, proven positive and compatible with the other processes to which this process is combined for the realization of a build (ex: ATEX, ...)

2.2 REGULATIONS

In addition to the dispositions specified in the Certification Manual, the following requirements apply.

It is the responsibility of the applicant / holder to ensure that the regulations applicable to their product are effectively respected.

2.3 QUALITY MANAGEMENT

In addition to the quality management dispositions specified in the Certification Manual, the following requirements apply:

The applicant / holder must have the resources and means necessary for the controls and tests, in order to guarantee the conformity of the products.

The results of the checks defined in the paragraphs below must be recorded and kept in accordance with a documented procedure.

The results of the checks must be in accordance to the acceptance criteria defined in the control instructions.

2.3.1 ROLES AND RESPONSIBILITIES

In compliance with the dispositions of the paragraph 5.3 of ISO 9001: 2015 relative to the roles, responsibilities and authorities within the organization for the persons in charge of control or having a direct impact on the critical points of the realization of the product will be audited.

2.3.2 CONTROL OF MONITORING AND MEASURING DEVICES

The paragraph 7.1.5 of ISO 9001: 2015 concerning the control of monitoring and measurement devices will be audited.

Measuring, checking and testing equipment which may influence the tests carried out under the QB mark shall be:

- Calibrated or verified at specified intervals or before their use, relative to measurement standards related to international or national measurement standards (where these standards do not exist, the reference used for calibration shall be recorded)
- Adjusted and adjusted again as needed
- Identified in order to be able to determine the validity of the calibration
- Protected against settings that may invalidate the measurement result
- Protected against all damage and deterioration during handling, maintenance and storage.

In addition, the applicant / holder must evaluate and record the validity of previous measurement results when equipment is found to be non-compliant. The applicant / holder must take appropriate action on the equipment and any other affected product. Records of calibration and verification results must be stored.

Control, measuring and testing equipment shall be used to ensure that the measurement uncertainty is known and compatible with the required measurement capability

2.3.3 PURCHASES

In compliance with the dispositions of the paragraph 8.4 of the ISO 9001: 2015 purchasing standards will be audited.

The applicant / holder must ensure about the quality of the raw materials and components involved in the production process of products for which he is the applicant / holder of the right to use the QB mark. The applicant / holder must:

- Define the specifications of the products to be supplied (and eventually establish specifications with its suppliers)
- Define criteria for choosing suppliers
- Establish and maintain a periodically updated list, of their authorized suppliers
- Establish and maintain records relating to the quality of its acceptable suppliers

The orders must clearly describe the ordered product (technical characteristics, quantities, deadlines, etc.), refer to the technical specifications in the specifications and also specify the request of a certificate of conformity.

In the case of subcontracting, precise specifications must be drawn up for the attention of the subcontractor.

The applicant / holder shall establish and implement sample acceptance checks or other necessary processes to ensure that the purchased products meet the specified purchase requirements in accordance with the table in paragraph 2.3.4. Checks on incoming materials may result from the analysis of the certificates communicated for each delivery by the supplier or from the checks carried out in the manufacturer's laboratory.

The procedures for these checks must be documented.

The results of these reception checks shall be recorded with mention of the acceptance criteria and the decisions taken in case of non-compliance.

2.3.4 PRODUCTION MASTERING CONTROL

The section 8.5.1 of the ISO 9001: 2015 related to the standard for production control will be audited. The applicant / holder must monitor and measure the product characteristics in order to check that the product requirements are reached.

These checks are executed:

- by the applicant / holder directly on the production line or in a laboratory installed at the production site,
- by the applicant / holder in an external laboratory, in accordance with dispositions recognized by EUROVENT CERTITA CERTIFICATION,
- by an identified subcontractor.

The applicant / holder must establish and keep updated the documents defining the factory production control that it applies.

The sampling method of products shall be described in detail in the quality plan. It shall not be left to the whole discretion of the operator.

All the checks and test all along the production process must be recorded.

For the QB mark, the Quality Management System introduced, must at least list down the tests and inspections as described below:

2.3.4.1 Specific inspections

Collectors					
Components	Inspections	Characteristics	Frequency	Comments	Position
Absorber	General appearance	In accordance with specifications	On each batch delivery or during production by sampling	When the absorber is delivered in reels, inspection takes place during production. Inspection performed by the supplier or subcontractor if the manufacturer does not have the necessary measuring equipment	Incoming goods / Production
	Dimensional				
	Optical characteristics <i>(the optical characteristics shall comply with)</i>	α absorption coefficient Minimum Technical assessment value - 2% ε emissivity coefficient Maximum technical assessment value + 2 %			
Transparent cover	General appearance	In accordance with specifications	On each unit	/	Production
	Dimensional				
	Optical characteristics <i>(the optical characteristics shall comply minimum with the value in the technical assessment - 2 %)</i>	τ Transmission coefficient	On each batch delivery by sampling or according to specifications	Inspection performed by the supplier or subcontractor if the manufacturer does not have the necessary measuring equipment	Incoming goods
Hydraulic connection	Dimensional	In accordance with specifications	On each batch delivery by sampling On rig during production	/	Incoming goods / Production
	Sealing (Hydraulic connection with brasing or welding)	- Using water :1,5 - Using air: 1,3 times the stated service pressure	On each unit		Production

Collectors (continued)					
Components	Inspections	Characteristics	Frequency	Comments	Position
Manufactured insulation	General appearance	In accordance with specifications	On each unit	Test is performed by the supplier if the manufacturer do not have the right equipment	Production
	Dimensional				
	Density or thermal conductivity	In accordance with specifications	On each batch delivery by sampling		Incoming goods
Insulation produced by injection	Injection time	In accordance with specifications	By periodic sampling, after prolonged stoppage and change of injection products	The storage conditions of Isocyanate and Polyol components shall comply with the supplier's instructions.	Production
	Temperature/Hygrometry				
	General appearance				
	Dimensional				
	Density				
Vacuum tubes	General appearance	In accordance with specifications	On each unit	/	Incoming goods
	Dimensional		On each batch delivery by sampling		
	Optical characteristics of glass <i>(the optical characteristics shall comply minimum with the value in the technical assessment - 2 %)</i>	τ Transmission coefficient	On each batch delivery by sampling	Inspections performed by the supplier or subcontractor	Incoming goods
	Optical characteristics of the absorber <i>(the optical characteristics shall comply with technical assessment value $\pm 2\%$)</i>	α absorption coefficient			
		ε emissivity coefficient			
	Vacuum value	In accordance with specifications	On each batch delivery, on each unit	Inspections performed by the manufacturer, supplier or subcontractor	Production
Heat pipe	Dimensional	In accordance with specifications	On each batch delivery by sampling	Inspections performed by the manufacturer, supplier or subcontractor	Incoming goods / Production
	Temperature release		On each unit		
	Minimum deviation release		On each batch delivery by sampling		

Collectors (continued)					
Components	Inspections	Characteristics	Frequency	Comments	Position
Electrical part (PVT)	Electrical continuity	Visual checking and measured	On each unit	Checked by the manufacturer	Incoming goods / Production
	Cell chain welding control	Visual	Sampling	Checked by the manufacturer	Incoming goods / Production
	Flash test: Deviation admitted on the power supply 1%	Following technical specs	On each unit	Checked by the manufacturer	Incoming goods / Production
	Electrical insulation control	Following technical specs	On each unit	Checked by the manufacturer	Incoming goods / Production
	Infrared control	Following technical specs	1 module every 10 modules	Checked by the manufacturer	Incoming goods / Production
	Control before packaging	Visual	On each unit	Checked by the manufacturer	Incoming goods / Production

Storage tank						
Components	Inspections	Characteristics	Frequency	Comments	Position	
Storage tank	All types	General appearance Dimensional	In accordance with specifications	On each unit for the manufacturer On each batch delivery in case of subcontracting	The subcontractor shall provide a record of the checks performed on the tanks	Incoming goods / Production
		Sealing	Using water: 1.3 times the stated service pressure - Using air: Pressure according to manufacturer tests specification	On each unit On each unit		
	Stainless steel type	Anticorrosion treatment of welds	In accordance with specifications	On each unit		

	Internal protective coating by enamelling type	Monitoring of oven temperature		Continuous		
		Monitoring of oven temperature Homogeneity Or Destructive control to check enamel quality		Continuous		
		Monitoring of oven time		Weekly		
		Coating thickness		Continuous		
		General appearance		By sampling		
		General appearance		On each unit		
	Other type of protective coating	Coating thickness	In accordance with specifications	By sampling		
		General appearance				
Electrical résistance	All Types	Electrical security	following EN 50106	On each unit	Earth continuity test Dielectric strength control	Production

Storage tank (continued)					
Components	Inspections	Characteristics	Frequency	Comments	Position
Manufactured insulation	General appearance	In accordance with specifications	On each unit		Production
	Dimensional				
	Density or thermal conductivity		On each batch delivery by sampling	Test is performed by the supplier if the manufacturer do not have the right equipment	Incoming goods
Insulation produced by injection	Injection time	In accordance with specifications	By periodic sampling, after prolonged stoppage and change of injection products	The storage conditions of Isocyanate and Polyol components shall comply with the supplier's instructions.	Production
	Temperature/Hygrometry				
	General appearance				
	Dimensional				
	Density				
Storage tank <i>(Subcontracted intermediate product)</i>	General appearance	In accordance with specifications	On each batch delivery	The subcontractor shall provide a record of the checks performed on the cylinders	Incoming goods
	Dimensional				
	Leaktightness	Using water : 1.3 times the stated service pressure - Using air : according to manufacturer specification	On each unit On each unit		

2.3.4.2 Checks on finished product

The auditor performs a check at least once a year on each model of the certified finished products that covers the following points:

- Visual examination of the finished product, taking into account the acceptance criteria stated by the manufacturer,
- Examination of compliance with the Technical Assessment,
- Examination of compliance of marking with the specifications set out pursuant to QB certification.

All of these checks will be recorded in a document including the results and validation conditions.

2.3.5 IDENTIFICATION AND TRACEABILITY

The paragraph 8.5.2 of ISO 9001:2015 on identification and traceability will be audited.

Traceability is a requirement of the QB brand. Consequently, the provisions defined in ISO 9001:2015 concerning the unique identification of the product must be considered.

This identification ensures the traceability and enables to determine the history of the product.

2.3.6 PRESERVATION OF THE PRODUCT

The paragraph 8.5.4 of ISO 9001:2015 concerning the preservation of the product will be audited.

The applicant / holder shall maintain the conformity of the product during the internal operations and during delivery at the intended destination. This preservation must include identification, handling, packaging, storage and protection. This preservation must also apply to the components of the product.

The applicant / holder shall use appropriate storage areas or premises to prevent damage or deterioration of the product during storage and before delivery.

To detect any deterioration, the condition of storage of the product must be evaluated at appropriate and defined intervals.

2.3.7 CONTROL OF NON-COMPLIANCE OF PRODUCTS

The paragraphs 8.7 and 10.2 of ISO 9001:2015 concerning the control of non-compliant products will be audited.

The applicant / holder shall ensure that the product that is not conform to the product requirements is identified and controlled to prevent an unintentional use or supply.

The controls along with the associated responsibilities and authorities for the treatment of non-conforming products must be defined in a written procedure.

The applicant / holder shall deal with a non-compliant QB marked product in one of the following ways:

- By carrying out actions to eliminate the non-conformity
- By authorizing its use, release or acceptance by way of derogation. In this case, the prior agreement of EUROVENT CERTITA CERTIFICATION must be obtained
- By carrying out actions to prevent its use (example: scrap)

Records of the nature of non-conformities and any subsequent actions undertaken, including the derogations obtained, shall be retained.

2.3.8 CUSTOMER CLAIM

The Paragraph 10.2 of ISO 9001:2015 concerning customer claims will be verified during monitoring audits.

A customer complaint register must be kept and must show their treatment. The holder shall keep in this register:

- a registration of all claims and remedies relating to products covered by the QB mark.
- a recording of the responses given.
- a record of the corrective measures adopted when the claims have identified a manufacturing anomaly.

2.3.9 INTERNAL AUDIT

The paragraph 9.2 of ISO 9001:2015 concerning internal audits will be checked during monitoring audits.

The organization must conduct internal audits at scheduled intervals to determine if the quality management system is:

- Compliant with the requirements of the quality management system and this certification manual
- Implemented and maintained in an efficient way.

Records of internal audits and their results must be stored.

2.3.10 CORRECTIVE ACTION

The paragraph 10.2 of ISO 9001:2015 on corrective actions will be audited.

The applicant / holder shall conduct actions to eliminate the causes of non-compliance in order to avoid recurrence.

The applicant / holder shall establish and maintain written procedures to implement corrective actions. Corrective actions must be adapted to the effects of the non-conformities encountered.

The applicant / holder shall implement and record all changes to the written procedures resulting from the corrective actions.

Written procedures for corrective actions must define the requirements for:

- Review of non-compliances (including customer claims)
- Searching for the causes of non-conformity concerning the product, as well as the recording of the results of this research
- Determining and implementing the necessary corrective actions

- The review of the implemented corrective actions

Records highlighting claims on certified products and their processing must be carried out and retained.

2.4 MARKING

In addition to the specifications given in the Certification Manual, the following requirements apply:
The marking must be carried out as follows (English and French version):



2.4.1 MARKING THE QB CERTIFIED PRODUCT

2.4.1.1 Full marking on the commercial documentation and other medias

Each certified product must have permanently, visibly and perennially the QB39 marking in accordance with the procedures as defined in paragraph 2.4.2 in the Certification Manual, and in accordance with the specific standards and regulations in force.

In addition to the dispositions specified in the Certification Manual, the following requirements apply:

- Manufacturer's and/or distributor's name and address (1),
- Commercial reference of the product,
- QB39 mark as specified below.



00
plant identification nb.

- 0000
last 4 digits of the Technical
Assessment number

- Maximum service pressure,
- The serial number
- Gross area (for the collectors)
- Manufacturing date (month/year), only if serial number is not a unique one,
- Technical Assessment number,
- Storage capacity (for domestic solar water heaters)

(1) The name and address marked shall match those given in the Technical Assessment. For commercial extensions of the Technical Assessment, reference to the manufacturer or manufacturing site is not mandatory.

For domestic solar water heaters, this marking shall be stamped:

- on the storage tank if the collector itself is QB39 certified with its own marking,
- on the storage tank and on the collector if the collector itself is not QB39 certified.

2.4.1.2 Light marking on the nameplate of the product

On the nameplate of each certified product, simplified marking is authorized given the limited space of this plate.

This marking must clearly and permanently include the QB logo.

It is allowed to mark on the product nameplates as follows:



0000

Factory number of the manufacturer

This marking thus allows a clear identification of the product and optimizes the space on the nameplate of the product.

The manufacturer's factory number can be communicated on simple request from the participant or applicant.

2.4.2 MARKING ON THE PACKAGING OF THE QB CERTIFIED PRODUCT

Marking on packaging shall enable to clearly identify the certified product. The type of marking used, and its content, shall ensure the traceability of the product as from the packing to the delivery where the certified product is to be used.

2.4.3 DOCUMENTATION MARKING

In addition to the specifications given in the Certification Manual, the product must be delivered with at least the printout of the instruction notice, (installation and use).

3. PART 3 - CERTIFICATION PROCESS

3.1 OBTAINING CERTIFICATION: TERMS OF ADMISSION

3.1.1 THE APPLICATION FORM

In addition to dispositions of the certification manual, the following requirements shall apply:

The application must be sent to EUROVENT CERTITA CERTIFICATION and must be submitted in accordance with the conditions and models given in paragraph 3.5 and in addition to § 3.1 of the certification manual.

It specifies the scope of the certification requested (the ranges or models which are the subject of the application).

Certification may be requested by:

- The holder of the Technical Assessment who manufactures the product himself,
- The holder of the Technical Assessment who subcontracts the production of his collector
- One or several distributors holding a commercial extension of a Technical Assessment

Application can be made by one or several distributors mentioned in the Technical Assessment of a manufacturer. In this case, the application cannot be accepted only if the manufacturer, holder of the Technical Assessment, gives its formal agreement for each concerned distributor. Referring to the last case, the brand name of the range must be the same as the holder of the Technical Assessment. Moreover, the holder of the Technical Assessment needs its own certificate.

3.1.2 EXAMINATION OF THE APPLICATION

The dispositions provided in the §3.1.2 of the general certification manual shall apply.

3.1.3 IMPLEMENTATION OF VERIFICATION OPERATIONS

The dispositions provided in the §3.1.3 of the general certification manual shall apply.

3.1.3.1 Initial Audit Admission

The dispositions provided in the certification manual shall apply.

In addition to the dispositions provided in the certification manual, the following requirements apply:

- The duration of the on-site audit is 1 day. This duration can be arranged in the case of a joint audit with other certifications.

Specific case of distributors:

The purpose of the audit is to ensure that the provisions defined and implemented by the distributor in its distribution network meet continuously the requirements laid down in paragraph 2.4 of this document.

The audit is done at the Distributor or the certificate holder.

The Auditor:

- Verify the application of the marking procedures provided for in Annex 6 by consulting the available catalogues and/or commercial documentation,
- examines the traceability of processes,
- examines the handling of customer claims.

3.1.3.2 Sampling for laboratory tests

In addition to the provisions of the certification manual, the following requirements shall apply:

The samples may be sent to the laboratory directly by the applicant when the tests are carried out in the context of a Technical Assessment.

3.1.3.3 Admission Tests

In addition to dispositions provided in the certification manual, the following requirements shall apply:

The tests carried out in the context of a technical assessment may be considered. The test reports must be communicated to EUROVENT CERTITA CERTIFICATION.

3.1.4 EVALUATION AND DECISION

The dispositions provided in the certification manual shall apply.

3.2 MAINTAINING THE CERTIFICATION: THE MODALITIES FOR MONITORING AND EVOLUTION

3.2.1 IMPLEMENTATION OF MONITORING OPERATIONS

The dispositions provided in the certification manual shall apply.

3.2.1.1 Follow up Audits

In addition to the dispositions provided in the certification manual, the following requirements apply:

A monitoring audit is carried out annually. Checks shall be carried out at the production site of the finished product (s) or semi-finished products (intermediate products) when they are delivered directly to the site in order to be assembled to the other components to form the finished product. If the manufacturer Subcontracts part of his production, EUROVENT CERTITA CERTIFICATION reserves the right to send an auditor to perform an audit at the sub-contractor's plant, based on the same certification manual.

The duration of the on-site audit is 1 day. This duration can be arranged in the case of a joint audit with other certifications.

The checks shall be carried out in accordance with Annex 1 of the "General requirements QB" and in paragraph 2.4 of this document.

The duration of the on-site audit is 1 day. This duration can be arranged in the case of a joint audit with other certifications.

Specific case of distributors:

The purpose of the audit is to ensure that the dispositions defined and implemented by the distributor in its distribution network meet continuously the requirements laid down in paragraph 2.4 of this document.

The audit is done at the Distributor or the certificate holder every 2 years.

The Auditor:

- Verify the application of the marking procedures provided for in Annex 6 by consulting the available catalogues and/or commercial documentation,
- Examines the traceability of processes,
- Examines the handling of customer claims.

3.2.1.2 Samples for testing in the brand laboratory

In addition to the provisions laid down in the certification manual, the following requirements apply:

The samples necessary for the tests are sent by/and under the responsibility of the holder to the independent laboratory in charge of carrying out the tests. They must be marked in order to authenticate them later.

Be requested via sending a selection form to the applicant stating the type of samples selected. The selected samples are sent within the deadline by and under the responsibility of the applicant to the laboratory responsible for carrying out the tests.

3.2.1.3 The follow up checks

In addition to the dispositions provided in the certification manual, the following requirements apply:

A sample collection is carried out for each certificate holder every two years, for each type of product (plane collectors, tube collectors, self-storing device, thermosiphon). Concerning plants producing thermosiphons and collectors, sampling will be done at the same time. These tests shall be carried out in accordance with the procedure given in Technical Annex 1 to this document.

The follow-up tests are performed by the test laboratories listed in paragraph 1.3.2, in accordance with the procedures specified in *Appendix 1* of this document. The results shall meet the following conditions:

- ✓ Solar Thermal collectors:
 - The aperture area and/or gross area surface determined during follow-up testing must not vary by $-0,5\%/+1\%$ compared with the area obtained on acceptance. For vacuum tubes collectors, the allowed variation is $\pm 3\%$ compared with the variation obtained on acceptance.
 - Based on a calculation of power value supplied by the collector, stated in aperture and/or gross area for a value of irradiance set at $G=1000 \text{ W/m}^2$, for a value t_m-t_a equal to 0, 10, 30 and 50, the comparison between acceptance and follow-up of the average relative deviation must lower or equal to $\pm 10\%$ AND the largest relative individual difference must be lower to 15%.
 - Glass breakage at the end of the follow up test must prove the glass type used to manufacture the collector is conform to the one used during the initial assessment.
- ✓ Domestic solar water heaters (thermosiphons and self-storing collectors):
 - the nominal volume determined during follow-up must not vary by $-0/+1\%$ compared with the value obtained on acceptance,
 - a variation of $\pm 10\%$ on the production calculation result (determined using the identified parameters - cf. *Appendix 3*) is permitted relative to the values determined on acceptance.

✓ Air flow solar collectors:

- The aperture area and/or gross area surface determined during follow-up testing must not vary by -0,5%/+1% compared with the area obtained on acceptance.
- On the basis of a calculation of the power value supplied by the sensor expressed in input surface and / or overall surface for an irradiance value fixed at $G = 400 - 700$ and 1000 W / m^2 , the comparison between admission and monitoring the average of the relative differences must be less than or equal to +/- 10% and the largest individual relative difference must be less than + 15%).
- The air flow rates considered during the test must be respected.

3.2.1.4 Verifications of technical and commercial documentation

The dispositions provided in the in the global certification rules shall apply.

3.2.1.5 Trade Audits

The dispositions provided in the in the global certification rules shall apply.

3.2.2 CERTIFICATION CAMPAIGN CALENDAR

Below are the main stages of a certification campaign in the form of a schedule.

QB39 Campaign calendar	Q1			Q2			Q3			Q4		
	Jan.	Féb.	Mar.	April	May	June	July	Agu.	Sep.	Oct.	Nov.	Déc.
Send declaration list to PA												
Validation of the declaration list by ECC												
Send the product selection to PA												
Product reception deadline by laboratory												
Test réalisation timetable												
Surveillance audit planification												
Audit Period												
Deadline audit realisation												
Annual fees invoicing												

3.2.2.1 Campaign markers

Here are the main markers of the certification campaign

Product declaration	
Send declaration to PA	From the 20 th of December
Validation of the declaration list by ECC	From the 15 th of January
Test management	
Send the product selection to PA	From the 15 th of February
Product reception deadline by laboratory	At the 31 st of May
Test réalisation timetable	Between Q2 – Q3
Audit management	
Surveillance audit planification	Depending Quarter Y-1
Audit Period	At any moment
Deadline audit realisation	At the 15 th of December
Send of the audit report by notification (ECC)	Audit date + 1 week
Send of the corrective action (PA)	Audit date + 1 month
Certificates	
Certificate validity	9 to 12 months renewables
Invoicing	
Fix annual fee invoicing	Following billing terms
Variable annual fee invoicing	Following billing terms
Audit invoicing	At reception of the report
Test invoicing	At reception of the report

3.2.3 EVALUATION AND DECISION

The dispositions provided in the in the global certification rules shall apply.

3.3 DECLARATION OF CHANGES

The dispositions provided in the in the global certification rules shall apply.

3.3.1 MODIFICATION CONCERNING THE HOLDER

The dispositions provided in the in the global certification rules shall apply.

3.3.2 AMENDMENT TO THE PRODUCTION SITES

The dispositions provided in the in the global certification rules shall apply.

3.3.3 MODIFICATION CONCERNING THE QUALITY MANAGEMENT OF PRODUCTION AND/OR MARKETING

The dispositions provided in the in the global certification rules shall apply.

3.3.4 MODIFICATION OF THE SCOPE OF CERTIFICATION: ADDITIONAL ADMISSION

The dispositions provided in the in the global certification rules shall apply

3.3.5 MODIFICATION OF THE QB CERTIFIED PRODUCT: EXTENSION

The dispositions provided in the in the global certification rules shall apply.

3.3.6 REQUEST TO MAINTAIN

The dispositions provided in the in the global certification rules shall apply.

3.3.7 TEMPORARY OR DEFINITIVE CESSATION OF A QB CERTIFIED PRODUCT

The dispositions provided in the in the global certification rules shall apply.

3.4 CONDITIONS FOR STOPPING MARKING OR UNMARKING FOLLOWING SUSPENSION, WITHDRAWAL, QUIT

The dispositions provided in the in the global certification rules shall apply.

3.5 CERTIFICATION REQUEST FILE TEMPLATE

3.5.1 FILE TO BE PROVIDED IN THE CONTEXT OF AN APPLICATION

The dispositions provided in the in the global certification rules shall apply.

The application for the right to use the QB mark must be addressed to EUROVENT CERTITA CERTIFICATION.

3.5.2 TECHNICAL ANNEX 1 TEST AND CALCULATION

A 1.1 GENERAL

A 1.2 SOLAR THERMAL COLLECTORS

A 1.3 INDIVIDUAL SOLAR WATER HEATERS: THERMOSIPHONS AND SELF-STORING COLLECTORS

A 1.4 NOMINAL VOLUME (VN) OF STORAGE TANK

A 1.5 THERMAL CHARACTERISTIC

3.5.2.1 General

This appendix sets out the test procedures used to obtain the certified characteristics of "Thermal solar products". It specifies in particular the design rules used to obtain the certified characteristics of a range of domestic solar water heaters on the basis of a tested model.

Note: The composition of a range of Thermal solar products, domestic solar water heaters or thermal solar collectors is defined in the Technical Assessments.

These characteristics are obtained during the Technical Assessment examination process and then checked periodically as part of QB certification.

3.5.2.2 Thermal solar Collectors

The certified characteristics are obtained by a test performed according to the procedure set out in NF EN 12975-2 and/or ISO 9806 and are defined by the following characteristics:

- ✓ The aperture area **A_a** (m²).
- ✓ Gross area **A_G** (m²).
- ✓ The optical efficiency **η₀** (dimensionless) according to EN 12975 and/or ISO 9806.

- ✓ The loss coefficient **a1** (W/m².K) according to EN 12975 and/or ISO 9806.
- ✓ The loss coefficient **a2** (W/m².K²) according to EN 12975 and/or ISO 9806.

These characteristics are used to calculate the efficiency as defined in NF EN 12975-2 and/or SO 9806.

Note: Definition of aperture area for solar collectors is given in vocabulary standard NF EN ISO 9488. When the laboratory is performing follow up test, glass is broken in order to check the conformity of this one compared to the declaration.

3.5.2.3 Domestic solar water heaters: Thermosiphons and Self-Storing Collectors

The certified characteristics of domestic solar water heaters are as follows:

- ✓ Nominal volume of storage tank (Vn in litres).
- ✓ Aperture area of the solar collector(s) in the system (Aa in m²).
- ✓ Thermal characteristics (identified parameters) (Ac*, Uc*, Us and Cs).

3.5.2.4 Nominal volume (Vn) of the storage tank

The nominal value of the storage tank corresponds to the volume stated by the manufacturer. It is obtained by calculation during the design of the tank. The calculation method shall be provided during the Technical Assessment and certificate application examination process, for checking purposes.

3.5.2.5 Thermal characteristics

The thermal characteristics are obtained by a test performed in accordance with the procedure set out in NF EN 12976-2 and the test method set out in ISO/DIS 9459-5.

This test is used to obtain the following identified parameters:

Identified parameters	Symbols	Units
Equivalent collector area	Ac*	m ²
Heat loss coefficient of the collector	Uc*	W/m ² .K
Heat loss coefficient of the storage tank	Us	W.K-1
Heat capacity of the storage tank	Cs	MJ.K-1

These identified parameters are used to carry out a predicted production calculation (in kWh/yr) for the domestic solar water heater in accordance with NF EN 12976-2 with the following parameters:

Calculation method: NF-EN 12976-2 (DST method)

Draw-off volume: volume corresponding to the nominal volume

Draw-off profile: CEN Mandate - TREN D1 D(2002) M/324 EU No. 2

Meteorological sites: Gillot (The Réunion island) for DOM TOM and Nice for mainland France

The thermal characteristics of design variants (variation in the nominal volume and/or collector area) in a range defined in the Technical Assessment are estimated by calculation based on the thermal characteristics of the model tested and with the following proportionality rules:

the equivalent collector area is proportional to the aperture area of the collector,

the heat loss coefficient of the collector is constant,

the heat loss coefficient of the storage tank is proportional to the volume of the tank,

the heat capacity of the storage tank is proportional to the volume of the tank.

