CERTIFICATION PROGRAMMES
FOR DOMESTIC, COMMERCIAL AND INDUSTRIAL FACILITIES

Indoor Climate	Ventilation & Air Quality	Process Cooling & Food Cold Chain
European Heat Pumps	Air to Air Plate Heat Exchangers *	Cooling Towers
Chilled Beams *	Air to Air Regenerative Heat Exchangers *	Cooling & Heating Coils
Close Control Air Conditioners *	Air Handling Units *	Drift Eliminators
Comfort Air Conditioners *	Air Filters Class M5-F9 *	Liquid Chilling Package & Heat Pumps *
Rooftop (RT) *	Residential Air Handling Units (RAHU)	Heat Exchangers *
Fan Coils Units *	Ventilation Ducts (DUCT)	Remote Refrigerated Display Cabinets
Variable Refrigerant Flow (VRF) *	Hygienic Air Handling Units (HAHU)	Heat Recovery Systems with Intermediate Heat Transfer Medium (HRS-coils)

* All models in the production have to be certified

▼ Indoor Climate

European Heat Pumps

Scope of certification

- Electrically driven heat pumps for space heating (incl. cooling function)
- Electrically driven heat pumps used for heating swimming pool water (outdoors or inside)
- Dual-mode heat pumps, i.e. designed for space heating and domestic hot water production,
- Gas absorption heat pumps (incl. cooling function)
- Engine-driven gas heat pumps (incl. cooling function).

Certification requirements

- Qualification campaign: 1 audit/factory + tests depending on products declared
- Repetition campaign: 2 machines/year + 1 audit/year/factory

Main certified characteristics and tolerances

- Heating and/or Cooling capacities *Ph* and/or *Pc* [kW], Electrical Power inputs *Pe* [kW] and Coefficient of performance *COP*
- Design capacity *Pdesignh*, Seasonal Coefficients of Performance *SCOP, SCOP$_{net}$* and Seasonal efficiency η_s
- Minimum continuous operation Load Ratio *LRcontmin* [%], *COP* at LRcontmin and Performance correction coefficient at LRcontmin *CcpLRcontmin*
- Temperature stabilisation time *th* [hh:mm], Spare capacity *Pes* [W], Energy efficiency for water heating [COP_{DHW} & WH] or Global performance coefficient for a given tapping cycle COP_{global}, Reference hot water temperature θ'_{WH} and Maximum effective hot water volume V_{MAX} [l]
- Daily consumption for the draw-off cycle in question (Qelec)
- Annual consumption (AEC)
- Sound power levels *Lw* [dB(A)]

ECC Reference documents

- Certification manual
- Operational manual OM-17
- Rating standard RS 9/C/010

Main testing standards

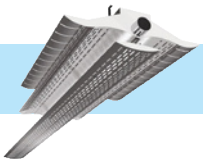
Thermal performance:
- Heat pumps with electrically driven compressors
- Space heating & cooling: EN 14511-1 to 4; Seasonal performance: EN 14825
- Domestic hot water: EN 16147
- Direct exchange ground coupled heat pumps: EN 15879-1
- Gas-fired heat pump: EN 12309-1 to 5

Acoustics:
- Heat pumps and dehumidifiers with electrically driven compressors: EN 12102
- ISO 3741: Reverberant rooms or ISO 9614-1: Sound intensity, measurements by points

▼ Indoor Climate

Chilled Beams

CERTIFY ALL



Scope of certification

This Certification Programme applies to all Active and Passive Chilled Beams. Chilled Beams are presented by ranges but all ranges must be certified. This applies to all product ranges which have either catalogue leaflets with product details including technical data or similar product information in electronic format.

Certification requirements

For the qualification procedure (yearly): 3 units are selected from regular production and tested in the independent Laboratory selected by Eurovent Certita Certification.

For the repetition procedures: the number of units selected is limited to 1 unit/range.

Obtained performances shall be compared with the values presented in the catalogues or electronic selection from manufacturer's website.

Certified characteristics & tolerances

Cooling capacity: 3 conditions are required.

- Active: 80 – 100 – 120% of the nominal air flow rate (for 8°C temperature difference)
- Passive: 6 – 8 – 10°C temperature difference

Tolerance = 12% and +24% for the 3 single values; –6% for the average value.
Water pressure drop: tolerance = maximum (2 kPa; 10%)

ECC Reference documents

- Certification manual
- Operational Manual OM-12
- Rating Standard RS 2/C/007

Testing standards

- EN 14518: "Testing and rating of Passive Chilled Beams"
- EN 15116: "Testing and rating of Active Chilled Beams"

Comfort Air Conditioners

CERTIFY ALL

Scope of certification

This certification programme includes:

- AC1: comfort air cooled AC and air to air HP with cooling capacity up to 12 kW, except double duct and single duct units.
- AC2: comfort units with cooling capacity from 12 to 45 kW
- AC3: comfort units with cooling capacity from 45 to 100 kW

This programme applies to factory-made units intended to produce cooled air for comfort air conditioning (AC1, AC2, AC3). It also applies to units intended for both cooling and heating by reversing the cycle. For the AC1 programme units out of Regulation 206/2012 are excluded.

Participating Companies must certify all production models within the scope of the programme they enter. However concerning multi-split air conditioners, only systems with maximum two indoor units are included, same mounting type, capacity ratio 1+/- 0.05.

Certification requirements

For the qualification & yearly repetition procedures: AC1: 8% of the units declared are selected and tested by an independent laboratory, and 30% of the selected units are tested at part load conditions. AC2 & AC3: 10% of the units declared are selected and tested by an independent laboratory.

Certified characteristics & tolerances

- Capacity (cooling and heating) –5%
- Efficiency (EER and COP) –8%
- Seasonal Efficiency (SEER and SCOP): –0% (the product is downgraded (or rerated) as soon as partload efficiency is out of tolerance
- A-weighted sound power level +0 dB (A)
- Auxiliary power +10%

Minimum continuous operation Load Ratio: LRcontmin [%], COP/EER at LRcontmin and Performance correction coefficient at LRcontmin CcpLRcontmin.

ECC Reference documents

- Certification manual
- Operational Manual OM-1
- Rating Standard RS 6/C/001 - RS 6/C/001A - RS 6/C/006

Testing standards

- EN 14511 • EN 14825 • EN 12102

▼ Indoor Climate

Close Control Air Conditioners

CERTIFY ALL

Scope of certification

This Certification Programme applies to factory-made units intended for Close Control Air Conditioning. This programme includes units with cooling capacities up to 100 kW under the specified test conditions.

Participating companies must certify all production models within the scope of the programme.

Certification requirements

For the qualification & repetition procedures: 10% of the units declared will be selected and tested by an independent laboratory.

Certified characteristics & tolerances

Air-Cooled and Water-Cooled Close Control Air Conditioners

- Total cooling capacity: –8%
- Sensible cooling capacity:–8%
- EER: –8%
- A-weighted sound power level: +0 dB

Chilled-Water Close Controls Air Conditioners

- Total cooling capacity: –8%
- Sensible cooling capacity: –8%
- Effective power input: +8%
- A weighted sound power level: +0 dB
- Water pressure drop:+10%

ECC Reference documents

- Certification manual
- Operational Manual OM-1
- Rating Standard RS 6/C/001
- Rating Standard RS 6/C/004
- Rating Standard RS 6/C/006

Testing standards

- EN 14511
- EN 12102 - EUROVENT 8/1

Rooftop (RT)

CERTIFY ALL

EUROVENT CERTIFIED PERFORMANCE ENERGY EFFICIENCY CHECK ENERGY CLASS ON www.eurovent-certification.com

The Eurovent rooftop certification (RT) program covers air-cooled packaged rooftop units below 100 kW in cooling mode, with an option to certify units from 100 kW to 200 kW and water cooled rooftops.

Eurovent certifies indoor and outdoor sound levels, cooling and heating capacity and efficiency. Certified performances provide transparency and fair comparison between manufacturers. It is also the basis for the reliable study of HVAC system energy performance.

In 2018 the program will evolve towards part load efficiency (SEER, SCOP). Current work done on EN 14825 aims to address rooftops in the calculation hypothesis.

The software certification will be a key item to comply with existing and coming certification of building energy calculations in the EU countries.

Mr Arnaud Lacourt
Head of Thermodynamics Department
Eurovent Certita Certification

Scope of certification

- This certification program applies to air-cooled rooftops rated below 100 kW.

Can be certified as an option:

- Models with cooling or heating capacity ranging from 100 kW to 200 kW
- Rooftops with 3 & 4 dampers
- Water cooled rooftops

Certification requirements

- For the qualification and repetition procedures (yearly) between 1 & 3 units are selected and tested by Eurovent Certification, depending on the number of products declared.

Certified characteristics & tolerances

- Capacity (Cooling or Heating): –5%
- EER or COP: -8%
- Condenser water pressure drop: +15%
- A-weighted Sound Power Level: +3 dBA.
- Eurovent Energy Efficiency class (cooling and heating)

ECC Reference documents

- Certification manual
- Operational Manual OM -13
- Rating Standard RS 6/C/007

Testing standards

- EN 14511 for Performance Testing
- EN 12102 for Acoustical Testing

▼ Indoor Climate

Fan Coils Units

CERTIFY ALL

Scope of certification

This Certification Programme applies to Fan Coil Units using hot or chilled water. It concerns both non ducted and ducted fan coils:

- Non ducted units: Fan Coil Units with air flow less than 0.7 m^3/s and a published external static duct pressure at 40 Pa maximum.
- Ducted units: Fan Coil Units up to 1 m^3/s airflow and 300 Pa available pressure.
- District cooling units and 60 Hz units can be certified as an option

Participating companies must certify all production models within the scope of the programme. Selection tools (software) are checked.

Certification requirements

Repetition procedure: the number of units to be tested each year will be proportional to the number of his basic models listed in the Directory, in an amount equal to 17% for Fan Coil Units with a minimum of one test.

Certified characteristics & tolerances

- Sensible capacity* ** : –8%
- Total cooling & heating capacity * ** : –7%
- Water pressure drop* **: +15%
- Fan power input*: +10%
- A-weighted sound power **: +2 dB(A)
- Air flow rate: –10%
- Available static pressure 0 Pa for medium speed and –5 Pa for other speeds
- FCEER & FCCOP
- Eurovent energy efficiency class

(*) At standard and non-standard conditions

(**) Tolerances for capacities are increased by 2% for variable speed units.

ECC Reference documents

- Certification manual
- Operational Manual OM-1A
- Rating Standard RS 6/C/002
- Rating Standard RS 6/C/002A

Testing standards

- Performance testing: EN 1397:2015
- Acoustic testing: EN 16583:2015

Variable Refrigerant Flow (VRF)

CERTIFY ALL

VRF systems have shown the highest growth amongst cooling systems during the past 10 years and indeed the highest potential for the next 10 years.

Until recently, VRF systems were the only type of direct expansion cooling system that was not covered by a dedicated Certification programme.

The Eurovent Certification scheme was therefore critical.

It was my privilege to Chair the Launching committee from the first meeting to its introduction. Whilst it took 2 years to complete, I believe it was worth the time and effort.

We at Toshiba are pleased as a manufacturer to work with Eurovent Certification Company as they guarantee the consistency of thermal testing and they increase the integrity of the products on the market.

Nick Ball
Toshiba EMEA
Engineer Director

Scope of certification

The certification programme for Variable Refrigerant Flow (VRF) applies to:

- Outdoor units used in Variable Refrigerant Flow systems with the following characteristics:
- Air or water source, reversible, heating-only and cooling-only.

VRF systems with data declared and published as combinations are excluded from the scope.

Heat recovery units are included in the scope but the heat recovery function is not certified.
High ambient systems are included in the scope but tested under standard conditions as specified in RS 6/C/008.

Certification requirements

- Qualification: units selected by ECC shall be tested in an independent laboratory selected by ECC.
- Repetition procedure: units selected from regular production shall be tested on a yearly basis.
- A factory visit is organized every year in order to check the production

Certified characteristics & tolerances

- Outdoor Capacity (cooling and heating): –8%
- Outdoor Efficiency (EER, COP): –10%
- A-weighted sound power level: 2 dB

ECC Reference documents

- Certification manual
- Operation manual OM-15
- Rating Standard RS 6/C/008

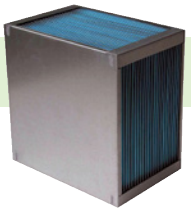
Testing standards

- EN 14511 - EN 12102

▼ Ventilation & Air Quality

Air to Air Plate Heat Exchangers

CERTIFY ALL



Scope of certification

This Certification programme applies to selected ranges of Air to Air Plate Heat Exchangers. Participants shall certify all models in the selected range, including:

- cross flow, counter-flow and parallel flow units
- all sizes
- all materials
- all airflow rates
- all edge lengths
- plate heat exchanger with humidity transfer

Heat Exchangers with accessories such as bypass and dampers shall not be included.

Manufacturers shall declare production places and provenance of products is randomly chosen. The programme does not cover other types of Air to Air Heat Exchangers like Rotary Heat Exchangers or Heat Pipes. Combination of units (twin exchangers) are also included in the scope of the program.

Certification requirements

For each range to be certified, 3 units for qualification and 1 for yearly repetition will be selected by Eurovent Certita Certification and tested in an independent Laboratory.

Certified characteristics & tolerances

- Dimensions: ± 2 mm
- Plate spacing: ± 1% or ± 1 plate
- Temperature efficiency Dry: –3 percentage points
- Temperature efficiency Wet: –5 percentage points
- Humidity efficiency: -5%
- Pressure drop: +10%, minimum 15 Pa

ECC Reference documents

- Certification manual
- Operational Manual OM-8
- Rating Standard RS 8/C/001

Testing standards

- EN 308

Air to Air Regenerative Heat Exchangers

CERTIFY ALL

Scope of certification

This Certification Programme applies to all ranges of Air to Air Regenerative Heat Exchangers (RHE) including sealing systems. Units sold without casing and sealing systems are also included. Participants shall certify all models in the ranges, including:

- all classes: condensation (non hygroscopic, non enthalpy) RHE, hygroscopic enthalpy RHE, hygroscopic sorption RHE
- all RHE geometry (wave height, foil thickness)
- all sizes (rotor diameters and rotor depths and surface areas of Alternating Storage Matrices - ASM)
- all materials
- all airflow rates
- all different types of sealing (if available)

Certification requirements

For the qualification procedures 1 unit per class of rotor will be selected and tested by an independent laboratory. For yearly repetition, 1 unit will be selected.

Certified characteristics & tolerances

- Temperature Efficiency: –3% points
- Humidity Efficiency: –5% points (min. tolerance 0.2 g/kg in absolute humidity of leaving supply air)
- Pressure Drop: +10% (min 10 Pa)
- Outdoor Air Corrrection Factor (OACF): 0.05
- Exhaust Air Transfer Ratio (EATR): +1% point

ECC Reference documents

- Certification manual
- Operational Manual OM-10
- Rating Standard RS 8/C/002

Testing standards

- EN 308
- ARI 1060

▼ Ventilation & Air Quality

Air Handling Units

CERTIFY ALL

Swegon has participated in the program for Air Handling Units from the start. The first priority at that time, and still is, was to find a way for fair competition. This is a long term struggle were we try to cover all aspects from manufacturing to software performance predictions and its agreement with tests. We discuss and take decisions about mandatory performance in software printout, rules for the energy labelling, how to test and what to apply in the, on site, auditor check. Customers should go for Eurovent certified products, to get reliable data, and then they can cut the main cost and take care of the environment by minimising the use of energy.

Committee chair:
Mr Gunnar Berg
Development Engineer, Swegon

Scope of certification

This Certification Programme applies to ranges of Air Handling Units that can be selected in a software. Each declared range shall at least present one size with a rated air volume flow below 3 m³/s. For each declared range, all Real Unit Sizes available in the software and up to the maximum stated air flow and all Model Box configurations shall be declared.

Participants shall certify all models in the selected product range up to the maximum stated air flow.

A range to be certified shall include at least one size with a rated air volume flow up to 3 m³/s.

Certification requirements

For the qualification procedure: the selection software will be verified by our internal auditor. A visit on production site will be organized. During that visit, the auditor will select one real unit per range, as well as several model boxes that will cover all mechanical variations.

The selected units will be tested and performances delivered by the selection software will be compared to the performances measured in an independent laboratory.

For the repetition procedures, the auditor will annually check the software conformity against the production data, and tests will be repeated every 3 to 6 years.

Certified characteristics & tolerances

- External Pressure: 4% or 15 Pa
- Absorbed motor power: 3%
- Heat recovery efficiency: 3%-points
- Heat recovery pressure drop (air side): max. of 10% or 15 Pa
- Water coil performances (heating/cooling): 2%
- Water coil pressure drop (water side): max. of 10% or 2 kPa
- Radiated sound power level casing: 3 dB(A)
- Sound power level unit openings:
  - 5 dB @ 125 Hz
  - 3 dB @ 250 – 8 000 Hz
- Casing Air Leakage: same class or higher

ECC Reference documents

- Certification manual
- Operational Manual OM-5
- Rating Standard RS 6/C/005

Testing standards

- EN 1886: "Ventilation for buildings – Air handling units – Mechanical performance"
- EN 13053: "Ventilation for buildings – Air handling units – Rating & performance for units components and sections"

▼ Ventilation & Air Quality

Air Filters Class M5-F9

CERTIFY ALL

Today, people spend most of the time inside of buildings. Hence, indoor air quality is a key factor to human health. Air filters removing fine dust from the air stream are the key component in building heating, ventilation and air conditioning systems to supply air of the required cleanliness and to ensure a high level of indoor air quality. With the air filter certification program, reliable and transparent filter data are ensured to customers. On a yearly base, four different filters are selected out of the product range of each participant for testing at independent laboratories according to EN 779:2012, verifying the initial pressure drop, the filter class and the initial and minimum efficiency, as well as the energy efficiency class to Eurovent document 4/11. Additionally, with the new energy efficiency label, Eurovent provides valuable data to enable users to select the most energy efficient air filters.

Committee chair:
Dr. Thomas Caesar
Head of Filter Engineering Industrial Filtration Europe
Freudenberg Filtration Technologies SE & Co. KG

Scope of certification

- This Certification Programme applies to air filters elements rated and sold as "Medium or Fine Air Filters M5-F9" as defined in EN 779:2012 and with a front frame size of 592 x 592 mm according to standard EN 15805.
- When a company joins the programme, all relevant air filter elements shall be certified.

Certification requirements

- For the qualification procedures: 6 units will be selected and tested by an independent Laboratory selected by Eurovent Certification.
  Then each year 4 units will be selected & tested

Certified characteristics & tolerances

- Filter class: no tolerance.
- Initial pressure drop: +10% + 5 Pa (minimum 15 Pa)
- Initial efficiency for F7 to F9: 10% – point
- Discharge efficiency for F7 to F9: 10% – point
- Annual energy consumption +10% +60 kWh/a

ECC Reference documents

- Certification manual
- Operational Manual OM-11
- Rating Standard RS 4/C/001

Testing standards

- EN 779:2012
- Eurovent 4/21

Ventilation Ducts (DUCT)

Scope of certification

The programme scope covers rigid and semi-rigid ventilation ductwork systems divided into the following sub-programmes:

- Rigid metallic ductwork systems with circular cross-section (DUCT-MC);
- Rigid metallic ductwork systems with rectangular cross-section (DUCT-MR);
- Semi-rigid non-metallic ductwork systems predominantly made of plastics (DUCT-P);

Each sub-programme applies to ductwork systems fitted with integrated sealing solution as described in relevant Rating Standard.

Certification requirements

The certification programme is based on product performance testing by independent testing laboratories as well as production sites auditing.

Certification characteristics & tolerances

The product performance testing will enable the verification of the following ratings accuracy:

- Air tightness class (all sub-programmes)
- Positive and negative pressure limits (all sub-programmes)
- Dimensions (DUCT-MC and DUCT-MR)
- Minimum and maximum service temperatures (DUCT-P)
- Resistance to external pressure (DUCT-P)

ECC reference documents

- OM-19-2016
- RS/2/C/002MC-2016
- RS/2/C/003MR-2016
- RS/2/C/004P-2016

Testing standards

- Air leakage and strength testing:
  – EN 12237:2003 (DUCT-MC and DUCT-P)
  – EN 1507:2006 (DUCT-MR)
- Service temperature and resistance to external pressure (DUCT-P):
  – RS 2/C/004P-2016

Hygienic Air Handling Units (HAHU)

Scope of certification

This programme applies to hygienic ranges of Air Handling Units. As an option of the Certification programme for Air Handling Units, only an already ECP certified range is eligible for the hygienic option. The hygienic aspect of the AHU is certified based on a 3 levels classification, each level declaring an AHU suitable for different application:

- Level 1: Offices, commercial buildings, schools, hotels
- Level 2: Hospitals
- Level 3: Pharmaceutical, food processes, white rooms

The previous list is not exhaustive and must be used as a reference only. Final customer/user who has complete and detailed knowledge of the building application shall decide which Hygienic rating level is appropriate

Certification requirements

Same as in the Air Handling Unit programme.

Certification characteristics & tolerances

Services characteristics:

The following services characteristics are certified:

1. Manufacturing
2. Maintenance
3. Quality Managemement System
4. IOM (Installation and Operational Manual)
5. Shipment

Hygienic characteristics:

The following hygienic characteristics are certified:

1. Materials
2. Casing performance
3. Components arrangement and performances (filters, coils, heat recovery systems, fans, humidifiers, dehumidifiers and silencers)

ECC reference documents

- OM-5-2016-rev1
- RS/6/C/011-2016 Hygienic AHU

Testing standards

- RS 6/C/005-2016
- EN ISO 846:1997
- EN ISO 2896:2001
- EN 10088-3:2014
- EN 1993-1-2:2005
- DIN 1946/4-6.5.1:2008
- EN 779:2012
- EN 1822:2010
- EN ISO 12944-2:1998

▼ Ventilation & Air Quality

Residential Air Handling Units (RAHU)

CERTIFY ALL

The objective of the Eurovent RAHU certification programme is, through tests performed by a third-party, to verify the performance of a unit bought somewhere on the open European market. It is important for the RAHU certification to use a unit out of the serial production – no special samples. For us, as a manufacturer, it pays to develop good products that deliver what we promise. By utilizing certified products, the designers' task is easier as they do not need to make detailed comparisons or perform advanced tests. Consultants, engineers and users can select a product and be assured that the catalogue data is accurate.

Certification is important for a designer/consultant/end user:

- No unnecessary risks – they can only use products that deliver what they promise "Eurovent certified"
- Well-functioning systems – the product delivers the promised capacity and performance
- Safer calculations on energy consumption is expected

Mr. Tobias Sagström
Global Product Manager Residential at Systemair AB

Scope of certification

This programme applies to balanced residential AHUs (supply and exhaust) with heat recovery systems such as:

- Air-to-air **plate** heat exchangers
- Air-to-air **rotary** heat exchangers
- **Heat-pumps** with a nominal airflow below 1 000 m³/h.

Certification requirement

- Qualification test campaign: 1 test per heat recovery type.
- Repetition test campaign: 1 test every 2 years for each heat recovery type.
- Units are sampled directly from selling points.

Certified performances

- Leakage class
- Aeraulic performances:
- Airflow/pressure curves
- Maximum airflow [m³/h]
- Electrical consumption [W]
- Specific Power Input SPI [W/(m³/h)]
- Temperature efficiency / COP
- Performances at cold climate conditions
- SEC (Specific Energy Consumption) in [kWh/(m².an)]
- A-weighted global sound power levels [dB(A)]

Tolerances

- Leakage class 0
- Airflow –10%
- Temperature efficiency –3%-point
- Temperature efficiency at cold climate –6%-point
- COP / EER –8%
- A-weighted global sound power levels +2dB(A)
- Electrical consumption +7%
- Specific Power Input SPI +7%
- Disbalance ratio 0

ECC Reference documents

- Certification manual
- Operation manual OM-16
- Rating standard RS 15/C/001

Testing standards

- European standard EN 13141-7:2010

Cooling Towers

The importance of air conditioning and industrial cooling is constantly increasing in modern architecture and industrial process cooling. The human perception of comfort and the new challenges to reduce the electrical power consumption and CO_2 footprint have designers striving for optimal system performances with the highest possible efficiencies. Reliable thermal performances are crucial to ensure these best efficiencies which are typical for cooling circuits driven by evaporative cooling equipment. On a yearly basis, one random picked cooling tower of each Eurovent-CTI certified product line will be full scale thermal tested by applying the CTI standard 201.

Eurovent Certita Certification guarantees the consistency of thermal testing and manufacturing of European and non-European companies that subscribe to the program.

Committee chair:
Mr Rob Vandenboer
Product Manager, Quality Manager
Evapco Europe, BVBA

The first ECC / CTI collaborative certification program for Cooling Towers

The Eurovent Certification Company (ECC, Brussels, Belgium) is pleased to announce the Certification programme for cooling tower thermal performance developed in cooperation with the Cooling Technology Institute Est.1950 (CTI, Houston, Texas, USA). The scope of the program includes standardized model lines for open circuit cooling towers, typically factory assembled. Standardized model lines are composed of individual models that are required to have published thermal rating capacities at corresponding input fan power levels.

Thermal performance certification via this program offers a tower buyer assurance that the capacity published for the product has been confirmed by the initial and ongoing performance testing per the requirements of the program using CTI STD-201. It also offers for regulators of energy consumption related to cooling towers, that the capacity of the towers has been validated. Minimum energy efficiency standards such as the Eurovent Industry Recommendation / Code of Good Practice Eurovent 9/12-2016 and ASHRAE 90.1, which requires cooling tower energy efficiency validation by the CTI certification process, are used by governments and by green building certification programs such as LEED™.

Scope of certification

This Certification Programme for Cooling Towers applies to product ranges (or product lines) of Open-Circuit series and Closed Circuit Cooling Towers that:

- Are manufactured by a company whose headquarter or main facility are located in Europe, Middle-East, Africa or India. After getting the Eurovent Certification, the CTI certificate could be requested.
- Have already achieved and hold current certification by the Cooling Technology Institute (CTI) according to CTI STD-201.

Certification requirements

For the qualification & yearly repetition procedures our internal auditor visits the production place and reviews the conformity of Data of Records. One unit per range is selected and tested by an independent test agency.

Certified characteristics & tolerances

- Certified characteristic shall be per CTI STD-201
- Entering wet bulb temperature: 10°C to 32.2°C (50°F to 90°F)
- Cooling range > 2.2°C (4°F)
- Cooling approach > 2.8°C (5°F)
- Process fluid temperature < 51.7°C (125°F)
- Barometric pressure: –91.4 to 105.0 kPa (27” to 31” Hg)

ECC Reference documents

- Certification manual
- Operational Manual OM-4-2016
- Rating Standard RS 9/C/001-2014

Testing standards

- CTI STD-201 RS
- ECC OM-4-2016

▼ Process Cooling & Food Cold Chain

Cooling & Heating Coils

Heating Cooling Coils (HCCs) which enable the conditioning of different zones and flexibility in application in buildings are generally employed in compact and central station AHU. To meet the required extra capacity in various processes, they are also used as heating or cooling devices.

With the application of these coils to high energy efficient heat recovery systems, the entire system becomes more compact as well as it avoids occupation of large spaces. Besides, they can be applied to Variable Air Volume (VAV) systems used for conditioning of hospitals, shopping centers and convention facilities.

The Certification programme for the HCCs has increased integrity and accuracy of the industrial performance ratings which provides clear benefits for end users who can be confident that the product will operate in accordance with design specifications. Also, by means of this certification programme users can collect reference data on the fundamental characteristics of the HCCs, such as capacity, pressure drop, mass flow complying with the standard of EN 1216.

Engin Söylemez, R&D
Test Engineer, Friterm A.Ş

Scope of certification

The rating standard applies to coils operating:
– with water or with a 0-50% ethylene-glycol mixture, acting as cooling or heating fluid.
– and without fans.

Certification requirements

- Qualification and repetition procedures: units declared will be selected and tested by an independent laboratory.
- The number of units will depend on the variety of coil material configurations and their applications for the applied range.
- The selection software will be verified in comparison with the test results.
- On-site audits (checking of software)

Certified characteristics & tolerances

- Capacity: –7%
- Air side pressure drop: +20%
- Liquid side pressure drop: +20%

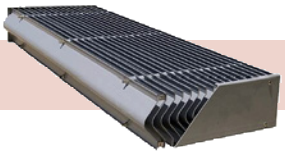
ECC Reference documents

- OM-9-2016
- RS 7/C/005

Testing standards

- EN 1216:1998+A1/2002

Drift Eliminators



Scope of certification

The Certification Programme for Drift Eliminators applies to Drift Eliminators used for evaporative water-cooling equipment.

Certified characteristics & tolerances

The following characteristics shall be certified by tests:

- For counter-flow and cross-flow film fill, the average drift losses of the two tests at 3.5 m/s are less than 0.007% of circulating water flow rate.
- For cross-flow splash fill, the average drift losses of the two tests at 3 m/s are less than 0.007% of circulating water flow rate.

No tolerance will be applied on the average drift losses.

ECC Reference documents

- Certification manual
- Operational Manual OM-14-2016
- Rating Standard RS 9/C/003

Testing standards

- CTI ATC-140

▼ Process Cooling & Food Cold Chain

Liquid Chilling Package & Heat Pumps

CERTIFY ALL

Certification is a strong way to supply safe information in the right language

Offering guaranteed performances to customers has always been a fundamental benefit thanks to the accredited independency of this certification program. Today the need for certified performances is emphasized by several directives and it is essential for customers to:

- demonstrate the high performance efficiency of their buildings,
- compare safety performances of the products selected with the requirements of the regulations implementing ERP Ecodesign & labelling directives,
- be sure of the return of their investment or energy savings,
- have the ability to compare fairly between chillers, heat pumps or other type of heaters.

In addition to being certified, performances must be seasonal, in line with the new regulations, and assessed according to the new harmonized standards as soon as they apply.

This program is also a great opportunity for fruitful exchanges between independent laboratories, certification body and manufacturers. It also facilitates the understanding and application of new regulations or standards in a regulatory context in perpetual evolution.

A certification is a guarantee of fair competition (for customers/manufacturers). It also helps increase the number of applications using RES, and represents a commitment in the reduction of consumption and emissions.

Didier Perales
Manager of Technical Relations & Concept Projects
CIAT Group France

ECC Reference documents

- Certification manual
- Operational Manual OM-3
- Rating Standard RS 6/C003 - RS 6/C/003A

According to New Regulations for Space heaters Eco Labelling No 811/2013 - ErP No 813/2013.

Seasonal efficiency for heating (η_s) for Chillers & Heatpumps with a design capacity below 70kW is certified since 26 September 2015. (For units above 70kW it is optional).

Scope of certification

- This programme applies to standard chillers and hydronic heat pumps used for heating, air conditioning and refrigeration.
- They may operate with any type of compressor (hermetic, semi-hermetic and open) but only electrically driven chillers are included.
- Only refrigerants authorised in EU are considered. Chillers may be air cooled, liquid cooled or evaporative cooled.
- Heating-only hydronic heat pumps, 60 Hz units and Higher capacities (between 600 kW and 1500 kW) units can be certified as an option.

Certification requirements

Qualification and repetition: a certain number of units will be selected by Eurovent Certita Certification and tested every year, based on the number of ranges and products declared.

Certified characteristics & tolerances

- Cooling & heating capacity and EER & COP at full load: < –5%
- Performance SCOP & Seasonal Efficiency for Heating η_s: automatically rerated when Part Load efficiency criteria fails
- Seasonal Efficiency ESEERfor cooling: automatically rerated when Part Load efficiency criteria fails
- A-weighted sound power level: > +3 dB(A) (> +2 dB(A) for units with Pdesignh below 70kW)
- Water pressure drop: +15%

Testing standards

- Performance testing: EN 14511
- Seasonal Performance testing: EN 14825
- Sound testing: EN 12102

Heat Exchangers

CERTIFY ALL

EUROVENT CERTIFIED PERFORMANCE ENERGY EFFICIENCY CHECK ENERGY CLASS ON www.eurovent-certification.com

The purpose of the Eurovent "Certify-All" certification programme for heat exchangers is to encourage honest competition and to assure customers that equipment is correctly rated.

The programme covers 3 product groups:
- Unit Air Coolers
- Air Cooled Condensers
- Dry Coolers

The "Certify-All" principle ensures that, for heat exchangers, all models in the three product categories are submitted for certification, not just some models chosen by the manufacturer.

A product energy class scheme has been incorporated into the certification programme, based on 7 classes from "A++" to "E" in order to provide a guide to the best choice of product: this enables the user to minimize life-cycle costs, including running costs which account for a much superior sum than the initial investment cost.

Committee chair:
Stefano Filippini
Technicalmanager - LUVE

Air coolers for refrigeration

Dry coolers

Air cooled condensers

Scope of certification

The Eurovent Certification Programme for Heat Exchangers applies to products using axial flow fans. The following products are excluded from the Eurovent Certification Programme for Heat Exchangers:

- Products units using centrifugal type fans.
- Units working at 60 Hz

In particular, the following products are also excluded from the Eurovent Certification programme for Dx Air Coolers and Air Cooled Condensers:
- Products using R717 refrigerant (ammonia), CO_2, and refrigerants with high glide like R407C or without correction factors
- Product ranges of Dx Air Coolers where maximum standard SC2 is below 1.5 kW.
- Product ranges of Air Cooled Condensers where maximum standard capacity under DT1 15K is below 2.0 kW

Certification requirements

- Qualification: units selected by Eurovent Certita Certification shall be tested in an Independent Laboratory selected by ECC
- Repetition procedure: units selected from regular production shall be tested on a yearly basis.

Certified characteristics & tolerances

- Standard capacity –8%
- Fan power input +10%
- Air volume flow ±10%
- External surface area ±4%
- Energy ratio R
- Energy class

For Dry Coolers:
- Liquid side pressure drop +20%

For Air Cooled Condensers and Dry Coolers:
- A-weighted sound pressure level: +2 dB(A)
- A-weighted sound power level: +2 dB(A)

ECC Reference documents

- Certification manual
- Operational Manual OM-2
- Rating Standard RS 7/C/005

Testing standards

- Thermal Performance EN 328
- Thermal Performance EN 327
- Thermal Performance EN1048
- Acoustics EN 13487

Remote Refrigerated Display Cabinets

CERTIFY ALL

Remote refrigerated display cabinets (RRDC) are the appliances for selling and displaying chilled and/or frozen foodstuff to be maintained within prescribed temperature limits.

Typically, food and beverage retailers are the direct customers of the refrigeration industry while the supermarket's customers are the end users of food and beverage retailers.

Food and beverage retailers ask for food safety and also for appliances with high-energy efficiency, supermarket's customers ask for food safety. Refrigeration industry has to face the hard challenge of satisfying both needs.

How is it possible to assure that the refrigeration appliances perform accurately and consistently to the reference standards? How is it possible to assure that what is rated by the manufacturer is properly rated?

There is only one way: It is necessary to join a globally recognized and industry respected certification program.

Eurovent Certita Certification program for RRDC is the only certification program in Europe that can assure that performance claims have been independently measured and verified. The factory audits and the product's performances tested in an independent and third-party laboratory make the difference!

Since 2011, Eurovent Certita Certification has also launched a voluntary energy label certification scheme, anticipating what only nowadays EC DG Energy is doing in the framework of Ecodesign and Energy Label Regulations. What better way to rate RRDC's energy consumption and to promote their energy efficiency?

What would you trust more: a self-declaration by the Manufacturer or what an independent, globally recognized and forerunner certification program is able to assure? Which one is better?

Maurizio Dell'Eva
Project manager
EPTA S.p.A. – MILANO (ITALY)

Scope of certification

- 100 basic model groups divided in 5 categories of remote units: semi-verticals and verticals (with doors); multi-deckers; islands; service counters; combi freezers.
- At least two references per basic model group representing 80% of sales shall be declared.
- One Bill of Material for each declared reference.

Certification requirements

- Qualification: sampling and test of one unit & Audit of one factory.
- Repetition test of one unit per brand every 6 months & Annual audit of each factory.

Certified characteristics & tolerances

- Warmest and coldest product temp. ±0.5°C
- Refrigeration duty (kW) 10%
- Evaporating temperature –1°C
- Direct elec. Energy Consumption (DEC) +5%
- Refrigeration elec. Energy Cons (REC) +10%
- M-Package Tclass: ±0.5°C
- Total Display Area (TDA) –3%

ECC Reference documents

- Certification manual
- Operational Manual OM-7
- Rating Standard RS 14/C/001

Testing standards

- EN ISO 29953 and amendments

Heat Recovery Systems with Intermediate Heat Transfer Medium (HRS-COIL)

Scope of certification

This certification programme covers the heat recovery exchangers with intermediate heat transfer medium corresponding to the category IIa ("without phase change") of the EN 308:1997 standard, that is Run Around Coils systems.

Certification requirements

The certification programme is based on product performance testing by independent testing laboratories according to the European standard EN 308:1997 as well as manufacturing facility auditing and operating software checking.

Certification characteristics & tolerances

When tested in the laboratory the obtained performance data shall not differ from the recalculated values ("test-check") by more than the following tolerance values:

- Dry heat recovery efficiency: –3 percentage points (abs. deviation)
- Air side pressure drop: Maximum [+10%; +15 Pa]
- Fluid side pressure drop: Maximum [+10%; +2 kPa]

ECC reference documents

- OM-18-2016
- RS 7/C/009 – 2016

Testing standards

- EN 308:1997