



SAIVER participates in the Eurovent certification program, the benchmark for the air conditioning and refrigeration industry.

Eurovent, the Common Reference in Europe

The importance and reliability of the European Air Conditioning Industry are clearly demonstrated by the existence of specific certification programs established and managed by Eurovent.

Performance comparison and third-party product testing, based on well-defined procedures, ensure fair and robust competition in an open market for all manufacturers.

Eurovent's website includes an "Online Directory of Certified Products" that serves as a guide to all certified manufacturers, providing information about the various certification programs as well as a complete list of participants and product specifications.

The purpose of Eurovent Certification

The purpose of the Eurovent Certification program is to create a set of common criteria for product classification.

With certified product specifications, the demands of designers become simpler as detailed performance comparisons and testing are no longer required for qualification.

Consultants, designers, and end-users can select products with the assurance that the stated data is accurate.

The importance of the Eurovent Certification program

Thanks to this certification, designers, installers, and end-users rely on products that have accurate and precise performance ratings and can trust what is documented in the technical documentation.

The documentation provided with the product simplifies the selection process and ensures a high level of quality standard in the market.

A Eurovent-Certified product allows you to:

- Provide users with reliability in compliance with the design specifications.
- Make comparisons between products and systems belonging to the same categories.
- Receive performance certification according to international standards.
- Facilitate access to tax deductions.

The seriousness in the procedures to be followed and the reliability of all parties involved make Eurovent Certification a program aimed at offering confidence to the customer. The project provides data verified by independent laboratories.

The end-user is satisfied from multiple perspectives because they are sure to buy products whose technical characteristics have been validated by an impartial 'referee.'

Thanks to this international body, customers who choose Eurovent-Certified products can compare them, assess their performance and expected consumption, and make their future purchases with greater awareness.

How the Certification program works

To participate in the project, manufacturers must adhere to specific rules.

First, they are obligated to provide detailed technical data for all products that are part of the program. Following a thorough verification, and only if the test analysis results align with the presented technical data, the products receive Certification.

They undergo an annual review to ensure the reliability of the certified data, even according to industry updates.

If the declared product performance does not match the values observed in the tests, the performance data published on the Eurovent-certification website is immediately updated with the measured values, and the manufacturer is required to update their published data.

Where to find the most up-to-date data

As the Eurovent certification program for Air Handling Units involves annual review checks, the reference point for accurate verification is the Eurovent-certification website.

We recommend periodically visiting the search engine page on the website:

www.eurovent-certification.com/it/search-engine#/

The Eurovent Certified Performance logo

In order to be valid, the Eurovent Certified Performance logo displayed by the manufacturer must contain the following references:

- The name of the certification program (ad es. AHU)
- The diploma number (ad es. 03.05.043)
- The certified series / range (ad es. A1)



Attention: When comparing the technical specifications of Air Handling Units from various manufacturers, we suggest that you always check that the technical sheets include the Eurovent Certified Performance logo, and that this logo includes the above-mentioned information. But not only that, it is important that this information is consistent with the technical sheet provided by the manufacturer.

It is not permitted to apply the Eurovent Certified Performance logo to documents related to non-certified series of Air Handling Units, and the use of the same logo is not allowed in case the certification is revoked by Eurovent.

The Eurovent-certification website, which we invite you to visit periodically, allows you to verify the status of certifications in real-time.

www.eurovent-certification.com/it/search-engine#/

SAIVER, 100% Eurovent certified Air Handling Units

To obtain Eurovent Certification, it is essential to start with proper design.

“NEXUS”, SAIVER’s Air Handling Unit design software, developed entirely in-house, encapsulates over 60 years of SAIVER’s experience in the Air Handling Unit sector.

SAIVER consistently updates the “NEXUS” software, which is periodically subjected to checks by Eurovent to ensure that once manufactured, the machines completely pass the tests.

Performance of SAIVER AHUs (www.eurovent-certification.com)

Mechanical resistance of the casing

The mechanical resistance of the casing is assessed by measuring the maximum deflection across any span of the panel and/or frame. The unit is first subjected to a positive internal pressure of +1000 Pa and then to a negative internal pressure of -1000 Pa. In both cases, deflection is measured. Subsequently, the unit is subjected to a positive internal pressure of +2500 Pa and a negative pressure of -2500 Pa to verify its resistance to the maximum pressure generated by the fan without permanent deformation (>2mm). Once again, deflections must be measured.

| Class | Max deflection mm/m |
|--------|---------------------|
| D1 (M) | 4 |
| D2 (M) | 10 |
| D3 (M) | > 10 |

Leakage through the casing

The air leakage from the assembled unit's casing is subjected to a test with a negative pressure of 400 Pa and a positive pressure of 700 Pa. The air leakage is then related to the total surface area of the casing, and the obtained value must not exceed the values in the following data sheets.

| -400 Pa Class | Max leakage l/s*m ² | Filter class |
|---------------|--------------------------------|--------------|
| L1 (M) | 0,15 | > F9 |
| L2 (M) | 0,44 | F8 - F9 |
| L3 (M) | 1,32 | G1 - F7 |
| +700 Pa Class | Max leakage l/s*m ² | Filter class |
| L1 (M) | 0,22 | > F9 |
| L2 (M) | 0,63 | F8 - F9 |
| L3 (M) | 1,9 | G1 - F7 |

Filter bypass

The air leakage around the filter frame is tested at a pressure of -400 Pa (upstream filters of the fan) and +400 Pa (downstream filters). The air leakage is related to the nominal flow rate of the unit, and based on the filter class, it must not exceed the specified limits.

| Filter class | G 1-4 | F 5 | F 6 | F 7 | F 8 | F 9 |
|-----------------------------|-------|-----|-----|-----|-----|-----|
| Total leakage coefficient % | - | 6 | 4 | 2 | 1 | 0,5 |

Thermal performance of the casing

The EN 1886 standard provides a test procedure to classify the transmittance (or overall heat exchange coefficient) of an air handling unit and, in parallel, using the same device and under the same conditions, measure the thermal bridges connected to the structural design. The classification proposed by the standard is shown in the table below.

| Thermal conductivity class | U W / m ² *K | Thermal bridging class | Kb |
|----------------------------|----------------------------|------------------------|----------------------|
| T1 | $U \leq 0,5$ | TB1 | $0,75 < Kb \leq 1$ |
| T2 | $0,5 < U \leq 1$ | TB2 | $0,6 < Kb \leq 0,75$ |
| T3 | $1 < U \leq 1,4$ | TB3 | $0,45 < Kb \leq 0,6$ |
| T4 | $1,4 < U \leq 2$ | TB4 | $0,3 < Kb \leq 0,45$ |
| T5 | no requirements | TB5 | no requirements |

Sound insulation of the casing

The standard provides a method for determining the approximate value of the sound insertion loss (Dp) of air handling units. Sound pressure measurements are taken around the unit's casing by placing a sound source inside and repeating the measurements after removing the panels. This process results in the sound attenuation of the casing. Measurements are taken within a frequency range that spans from 125 Hz to 8,000 Hz.

1. PURPOSE OF THE PROGRAM

This certification program applies to specific ranges of Air Handling Units. Participants are required to certify all product models within each selected range up to their established maximum capacity. The minimum air capacity must be less than 25,000 m³/h.

2. DEFINITIONS

2.1. Air handling unit

A factory-assembled metal casing containing one or more fans and other equipment required to provide one or more of the following functions: air circulation, filtration, heating, cooling, heat recovery, humidification, dehumidification, and air mixing. The unit must be ducted.

2.2. Product range

A family of products of different sizes under the same designation and using the same selection procedure.

2.3. Deflection

The maximum deformation of the sides of the unit subjected to a positive or negative pressure, expressed as the difference in distance from a reference plane located outside the unit itself and the outer surface of the unit, whether subjected to the test pressure or not. The unit's robustness.

2.4. Air loss factor

The air loss per unit of external surface area of the air handling unit.

2.5. Thermal conductivity

The amount of heat transmitted per unit of the central unit's surface due to the temperature difference between the inside and outside of the unit itself.

2.6. Thermal bridge factor

The ratio between (1) the difference between the minimum temperature at any point on the external surface of the unit and the average internal temperature and (2) the difference in the average air-air temperature.

2.7. Filter bypass loss

Air bypass between filter cells.

2.8. Sound insulation

Value of noise loss due to the insertion of insulation in the air handling unit.

2.9. Heat recovery

Heat transferred from the exhaust system to the outdoor air supply system.

2.10. Sound power in ducts

Sound power radiated in the air duct.

2.11. Airflow sound power

Sound power radiated through the unit casing.

3. TEST SPECIFICATIONS

The data declared by the manufacturers are verified with tests conducted according to the following standards:

3.1. Mechanical characteristics

The European standard EN1886: Building Ventilation - Air Handling Units - Mechanical Characteristics. The initial chapters of this standard read:

This European standard has been developed by the Technical Committee CEN/TC 156 "Ventilation for Buildings," which is chaired by BSI (British Standards Institution).

This European standard is an integral part of a series of standards for air handling units used for ventilation and air conditioning in buildings occupied by people. It considers the mechanical performance of an air handling unit as a whole and will be supported by a standard for sections and components.

This European standard does not replace existing European standards.

This European standard must be given the status of a national standard, either by publishing an identical text or by adoption notification, by November 1998, and conflicting

national standards must be withdrawn by November 1998.

In accordance with the Common CEN/CENELEC Rules, the national standardization bodies of the following countries are required to adopt this European standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Iceland, Italy, Luxembourg, Norway, the Netherlands, Portugal, the United Kingdom, the Czech Republic, Spain, Sweden, and Switzerland.

INTRODUCTION

This standard specifies the mechanical performance of air handling units considered as a whole, to be used by all those involved in the construction, design, installation, and maintenance of ventilation and air conditioning systems.

The functions and characteristics of individual sections of the unit will be considered in another standard in the series related to air handling units.

Considering the different requirements related to climatic conditions, construction traditions in various European countries, and the specific characteristics of individual applications, most of the requirements are given in the form of classes that can be specified either generally in certain regions or separately for individual applications.

Only some parts of this standard are derived from existing national or international standards.

Comparative tests of strength, air leakage, and thermal performance have been conducted in Germany, Finland, the Netherlands, the United Kingdom, and Switzerland.

PURPOSE AND SCOPE

This standard specifies test methods, test requirements, and classifications for air handling units that supply and/or extract air through ductwork for the ventilation and air conditioning of an entire building or its parts.

This standard does not apply to:

- a. Air conditioning units serving a specific area of the building, such as fan coil units;*
- b. Units for residential buildings;*
- c. Units primarily producing ventilation air for manufacturing processes.*

The test methods and requirements apply to both the complete unit and separate sections, except for the thermal and acoustic performance of the casing.

The filter bypass test is not applicable to tests of high-efficiency air filters (HEPA).

NOTE

It is recommended to install HEPA filters downstream of the air handling unit, and these installations must be tested for tightness in accordance with the appropriate filter standards.

The test method for the thermal performance of the casing can be used to compare different constructions but not to calculate heat losses through the casing or the risk of condensation. Similarly, the test method for the acoustic performance of the casing can be used to compare different constructions but not to provide precise acoustic data for specific units..

3.2. Characteristic performance

The European standard prEN13053: Building Ventilation - Air Handling Units - Performance and characteristics for units, components, and sections.

4. CERTIFIED CHARACTERISTICS

3.1. Mechanical characteristics

The following mechanical characteristics are certified:

- a. Casing strength
- b. Casing leakage
- c. Filter bypass losses
- d. Thermal conductivity of the casing
- e. Thermal bridge factor
- f. Casing sound insulation

4.7. Characteristic performance

The following characteristic performances are certified:

- a. Airflow rate - Static pressure - Power consumption
- b. Sound power per octave band of duct noise
- c. Airflow noise power
- d. Heating capacity*
- e. Cooling capacity*
- f. Heat recovery*
- g. Water side pressure drop*

** If standard characteristics of the product range.*

The validity of the data declared by the participating manufacturer is verified on a unit from the indicated range in an independent laboratory chosen by EUROVENT.

4.3. Characteristics not covered by the program

The following characteristics of the air handling units are not verified:

- Filtration efficiency
- Humidification
- Vibration levels
- Hygienic characteristics
- Weather protection
- Air mixing efficiency
- Drainage