EUROVENT
EUROPEAN INDUSTRY ASSOCIATION

Eurovent 20/1 - 2023

Ecodesign and Energy Labelling compliance of bidirectional RVUs. Requirements for suppliers and effective monitoring by MSAs

First Edition

Published on Tuesday, 04 April 2023 by
Eurovent, 80 Bd A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Document history

This Eurovent Industry Recommendation / Code of Good Practice supersedes all of its previous editions, which automatically become obsolete with the publication of this document.

Modifications

This Eurovent publication was modified as against previous editions in the following manner:

Modifications as against	Key changes
1st edition	Current document

Preface

In a nutshell

The aim of this document is to enhance the enforcement of Ecodesign and Energy Labelling requirements for bidirectional residential ventilation units placed and put into service on the EU market. It is principally addressed to suppliers and market surveillance authorities.

The first six chapters provide the general legislative background and an overview of the specific requirements to which suppliers are subject. Chapter 7, particularly aimed at market surveillance authorities, presents practical tips to facilitate effective compliance monitoring. Chapter 8 outlines the benefits of voluntary third-party certification for monitoring product compliance.

Authors

This document was published by Eurovent and was prepared in a joint effort by participants of the Product Group 'Residential Air Handling Units' (PG-RAHU), which represents a vast majority of all manufacturers of these products active on the EMEA market, as well as the Eurovent partners, involved in market surveillance activities. Particularly important contributions have been provided (in alphabetical order of the last name) by Xavier Boulanger, Jaroslav Chlup, Bohumil Cimbal, Amalie Gunner, Anneli Halfvardsson, Juhani Hyvarinen, Jelmer de Jong, Gabriella Mazzola, Christian Nicolaisen, Igor Sikonczyk and Harald Svedung.

Copyright

Suggested citation

Eurovent AISBL / IVZW / INPA. (2023). Eurovent 20/1 - 2023 - Ecodesign and Energy Labelling compliance of bidirectional RVUs. Requirements for suppliers and effective monitoring by MSAs. Brussels: Eurovent.

Legal note

This document reflects the views of Eurovent members and as such cannot in any case by considered as legally binding. The binding interpretation of EU legislation is the exclusive competence of the Court of Justice of the European Union. Referred EN standards are valid at the date of publication of this document.

Contents

List of abbreviations and symbols

BVU	Bidirectional Ventilation Unit
CPR	Construction Products Regulation
DoC	Declaration of Conformity
ECC	Eurovent Certita Certification
EMC	Electromagnetic Compatibility (Directive)
EPREL	European Product Registry for Energy Labelling
IAQ	Indoor Air Quality
LVD	Low Voltage Directive
MD	Machinery Directive
MSA	Market Surveillance Authorities
NRVU	Non-Residential Ventilation Unit
R&D	Research and Development
RED	Radio Equipment Directive
RoHS	Restriction of Hazardous Substances (Directive)
RVU	Residential Ventilation Unit
UVU	Unidirectional Ventilation Unit
VSD	Variable speed drive
WEEE	Waste from Electrical and Electronic Equipment (Directive)
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation)

Main referred regulations, standards and documents

[1] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products

[2] Commission Regulation (EU) No 1253/2014 of 7 July 2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for ventilation

[3] Commission Delegated Regulation (EU) No 1254/2014 of 11 July 2014 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of residential ventilation units

[4] Commission communication (2016/C 416/06) in the framework of the implementation of Commission Regulation (EU) No 1253/2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for ventilation units and of the implementation of Commission Delegated Regulation (EU) No 1254/2014

supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of residential ventilation units

[5] Guidelines accompanying Regulation (EU) No 1254/2014 with regard to the energy labelling of residential ventilation units and Regulation (EU) No 1253/2014 with regard to ecodesign requirements for ventilation units

[6] Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU

[7] Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC

[8] EN 13141-7:2021 - Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 7: Performance testing of ducted mechanical supply and exhaust ventilation units (including heat recovery)

[9] EN 13141-8:2022 - Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 8: Performance testing of non-ducted mechanical supply and exhaust ventilation units (including heat recovery)

[10] EN 13142:2021 - Ventilation for buildings - Components/products for residential ventilation - Required and optional performance characteristics

[11] EVIA/Eurovent Guidance Document on Ecodesign requirements for ventilation units. Release 3 – 10th Feb. 2017 - Including EVIA, Eurovent and EU Commission comments

1 Introduction

According to Eurovent Market Intelligence, there were over 150 manufacturers of bidirectional ventilation units on the EU market in 2019. The industry of bidirectional residential ventilation units is growing fast. This technology is a standard in new residential buildings and the renovation wave strategy of the European Commission will further increase demand. Therefore, the number of residential ventilation unit manufacturers increases, and this trend is likely to continue. However, given the relative simplicity of the product, many manufactures are small local producers without specialised quality control and R&D departments equipped with testing facilities.

Manufacturers must correctly declare the technical parameters of their ventilation units. If declared parameters do not match actual parameters, the designed performance of the ventilation system with respect to, for instance, energy consumption and indoor air quality may not be achieved. It may also mean that the mandatory minimum ecodesign and energy labelling requirements for products placed on the EU market are not met.

According to EU legislation, the responsibility for the compliance of the residential ventilation unit lays with the manufacturer, which must carry out the compliance assessment procedure including compliance testing. The legislator leaves freedom to manufacturers on how to ensure compliance and does not specify requirements for compliance testing.

Monitoring and verification of compliance of residential ventilation units placed on the EU market is the task of Market Surveillance Authorities (MSA) in Member States. These activities focus primarily on the verification of documentation requirements and EC declarations of conformity. The effectiveness of this surveillance is not always satisfactory and varies between Member States. One of the EU supporting initiatives aimed at increasing the rate of product compliance is the EEPLIANT3 project. Its activities include coordination of the monitoring, verification and enforcement actions of MSAs. Preliminary results of EEPLIAT3 project for residential ventilation units[1] showed that 27% of products failed documentation check and 75% of products inspected in online shops were found non-compliant. These controls concerned only the verification of formal requirements and did not include performance testing of products.

Among the reasons for the unsatisfactory effectiveness of market surveillance may be the limited capacity of market surveillance authorities and possible difficulty with the interpretation of requirements regarding declaration of conformity and testing for manufacturers, in particular the small size producers.

Therefore, objectives of this document drafted by Eurovent members include:

- Sharing best practices on the ecodesign and energy labelling conformity assessment carried out by suppliers, in particular manufacturers, of bidirectional residential ventilation units.
- Providing a 'quick-check' tool for verification of the declared data consistency that could be helpful for screening of 'high-risk' ecodesign and energy labelling non-compliant products by MSA.
- Provide end users with information on what declarations and documentation they should expect from the ventilation unit supplier.

[1] https://eepliant.eu/index.php/newsletters/170-2nd-newsletter-including-graphs-complete

2 Legislative context

Products covered by the so-called New Approach Directives and other pieces of EU harmonisation legislation must comply with relevant requirements in force when placed or put into service on the EU market. The New Approach Directives concern either specific groups of products (for example machinery, energy-related products, including residential ventilation units) or risks and phenomena (noise emissions, electromagnetic compatibility). In addition, some products are subject to energy labelling requirements. A product may therefore be subject to different legislation and must meet all relevant requirements. It is the responsibility of the suppliers to assess which directives and regulations apply to the product in question. The term 'suppliers' includes:

- Manufactures established in the EU.
- Importers (by definition established in the EU), where the manufacturer is not established in the Union.
- Authorised representatives (by definition established in the EU) who have a written mandate from the manufacturer designating the authorised representative to perform the tasks set out in relevant legislation on the manufacturer's behalf.

It must be emphasised that an installer who purchases a product directly from outside the EU (not from an EU-based entity) and installs it in the EU market becomes a supplier and must comply with all its obligations.

The development of trade and business forms, notably e-commerce, resulted in the term 'supplier' being extended to the term 'economic operator' in some legislation. In addition to entities mentioned above, the economic operator can also be a fulfilment service provider, i.e. any natural or legal person offering, in the course of commercial activity, at least two of the following services: warehousing, packaging, addressing and dispatching, without having ownership of the products involved.

The subject matter and scope of the requirements depend on the product type and are laid down in regulations relevant for the specific product. These may include both technical and performance requirements, as well as information requirements. Requirements for materials used in manufacturing may also be specified. Provisions of directives may be supported by harmonised standards with regard to the testing methods, design or manufacture of a particular product. Harmonised standards are published in the Official Journal of the European Union. The application of a harmonised standard is not mandatory in most cases, and it does not usually automatically imply conformity with the corresponding requirements. However, the application of a harmonised standard shall provide for presumption of conformity of the product with the provisions of the Directive.

The Construction Products Regulation (CPR) is a regulation that makes the application of certain harmonised standards mandatory for some construction products such as life safety related products, including smoke extractors, fire resistance of ducts and fire dampers. According to this regulation, for products for which a harmonised standard exists, the application of the harmonised standard is mandatory and allows presuming the conformity of the product with the provisions of the directive.

Ventilation units, for example, do not have a harmonised standard referring to the CPR.

Suppliers are responsible for ensuring product compliance. By affixing the CE mark on the product and issuing the EC declaration conformity, they confirm that the applicable requirements, including conformity assessment procedures, were met. Suppliers are also required to compile technical documentation for conformity assessment, which can be requested by MSAs.

Each of the New Approach Directives provides details on conformity assessment procedure of products with its essential requirements. Where justified, the conformity assessment procedure is specified among relevant modules (indicated by letters A to H) as defined in Annex II to Decision No 768/2008/EC. Some of these modules require a notified body to be involved in the process to examine the technical documentation and test the product. The notified body is an independent organisation designated by an EU country to assess the conformity of certain products, when a third party is required.

2.1 Residential ventilation units

This document concerns bidirectional residential ventilation units and focuses on the related ecodesign and energy labelling requirements for this kind of product. Further requirements applicable to bidirectional residential ventilation and arising from other legislation are generally addressed in chapter 6.

2.1.1 Ecodesign - requirements and conformity assessment

The framework for ecodesign requirements for energy-related products is established in Directive 2009/125/EC and the specific ecodesign requirements for ventilation units are set out in Regulation (EU) 1253/2014.

The applicable conformity assessment procedures specified in the Directive and Regulation are the internal design control system or the management system. Both procedures are described respectively in Annex IV and V of the Directive. None of these procedures requires participation of a notified body in the process, which means that the manufacturer himself assesses the product conformity with requirements, carries out (or commissions to an external testing lab) measurements on the ecodesign requirements, and declares on his sole responsibility that the product satisfies the requirements.

Regulation (EU) 1253/2014 requires that the technical documentation file for conformity assessment should be compiled in accordance with Annex IV to Directive 2009/125/EC and sets out additional elements specific for RVUs to be included in the documentation. For more details refer to paragraph 4.1.1). In article 6 and Annex VI, the Regulation sets out details of the verification procedure for market surveillance proposes, including verification tolerances to apply in compliance testing.

2.1.2 Energy labelling - requirements and conformity assessment

The framework for energy labelling is set in Regulation 2017/1369 which repealed Directive 2010/30/EU, while the specific energy labelling requirements for residential ventilation units are defined in Regulation (EU) 1254/2014. The latter Regulation sets out the details of the verification procedure for market surveillance purposes in its Annex IX.

2.2 Market surveillance

Given that the features and performance data of residential ventilation units related to ecodesign and energy labelling requirements are provided by manufactures in a form of self-declaration, independent product checking is very important. This role is performed by market surveillance authorities, which are designated by the Member States. A list of national market surveillance authorities can be found on https://ec.europa.eu.

Market surveillance protects not only the interests of product users, but also of the manufacturers, ensuring a level playing field in the market. An efficient control system does not allow dishonest companies to 'save' on product safety, efficiency or tests related to conformity assessment. In other

words, market surveillance is crucial for the smooth functioning of the Single Market and it protects businesses from unfair competition by those who ignore the rules.

The framework for market surveillance and compliance of products is laid down in Regulation (EU) 2019/1020. To enforce Union harmonisation legislation and ensure that it is fully complied with, Member States organise and carry out market surveillance and designate market surveillance authorities in their territory. Member States also ensure that their market surveillance authorities have the necessary resources, including sufficient budgetary and a sufficient number of competent staff, procedures and other arrangements for the proper performance of their duties.

EU market surveillance legislation provides:

- clear and uniform rules applying to non-food products and economic operators
- requirements (infrastructure, organisation, legal powers, etc.) to ensure that market surveillance can cope with enforcing EU legislation
- streamlined market surveillance procedures for controlling products within the EU and at its borders (import controls)

Compliance with Union harmonisation legislation regarding ecodesign and energy labelling is monitored and enforced by market surveillance authorities also in accordance with provision of Regulation (EU) 2017/1369 on energy labelling, Directive 2009/125/EC on energy-related products and the implementing Regulations (EU) 1253/2014 and 1254/2014 which provide verification procedures for market surveillance purposes.

2.2.1 What are the activities and responsibilities of MSA authorities?

Market surveillance authorities perform appropriate checks of products by means of documentary checks and, where appropriate, physical and laboratory checks based on adequate samples.

Bidirectional RVUs are part of ventilation systems, and their actual performance strongly depends on the system characteristics. Therefore, contrary to typical stand-alone 'plug and play' products, the compliance monitoring for RVUs also needs to take into account putting into service, which must be carried out by a professional installer according to the manufacturer's instructions.

Market surveillance authorities in each Member Stated individually decide on which checks to perform, for which types of products and on what scale. In this decision they take into account factors such as possible hazards and non-compliance associated with the products, their occurrence on the market, consumer complaints and other information received from other authorities, economic operators, media and other sources that might indicate non-compliance. This action should be designed to achieve the greatest impact on the market. **This means that the approach to the compliance check of residential ventilation units may considerably vary in different Member States. However, best practices developed by some of the market surveillance authorities that may be of benefit to other market surveillance authorities should be identified and reported in the EU MSA network.**

The correctness of product marking and its technical documentation may be subject to control in the first instance. In particular, the EU Declaration of Conformity (see also paragraph 5) is an important document for market surveillance authorities. If the findings of the check indicate that the product does not meet the essential requirements, further administrative proceedings are initiated.

Market surveillance authorities have power particularly to:

- require suppliers to provide relevant documents, technical specifications, data or information on compliance and technical aspects of the product, including access to embedded software,
- require suppliers to provide relevant information on the supply chain, on the details of the distribution network, on quantities of products on the market and on other product models that have the same technical characteristics as the product in question,
- carry out unannounced on-site inspections and physical checks of products, but only at production facilities and not at building sites.
- enter any premises, land or means of transport that the economic operator in question uses to identify non-compliance and to obtain evidence,
- start own-initiative investigations to identify non- compliances and bring them to an end,
- impose penalties on a non-compliant supplier in accordance with rules laid down by a Member State.
- acquire product samples, including under a cover identity, to inspect those samples and to reverse engineer them in order to identify non-compliance and to obtain evidence.

Market surveillance authorities may require a supplier to reclaim the costs of actions taken in relation to cases of non-compliance. These may include the cost of carrying out testing, costs of storage and costs of other activities relating to products found to be non-compliant.

When market surveillance authorities find that a product does not comply with the applicable requirements of Union harmonisation legislation, they require the relevant supplier to take appropriate and proportionate corrective action to eliminate the non-compliance. If the supplier (economic operator) fails to take corrective action or the non-compliance persists, market surveillance authorities shall ensure that the product is withdrawn or its availability on the EU market is prohibited or restricted.

2.2.2 How active are MSAs in various Member States?

The level of activity of MSAs in checking compliance of bidirectional RVUs with ecodesign and energy labelling requirements varies considerably between Member States. Eurovent members observed the highest activity in the countries of Central-Western and Northern Europe, where several thorough factory checks were reported. However, it was noted that the interpretation of the requirements by the inspectors was not consistent across Member States. The test campaign of the Finnish MSA (Tukes) carried out in 2018 can be pointed out as a good example of MSA operation. The campaign involved the purchase and testing of four ventilation units, one of which revealed some shortcomings. These were corrected by the manufacturer voluntarily without any obligatory measures from the authority.

2.3 EPREL

The European Product Registry for Energy Labelling (EPREL) and the obligation for suppliers to register products in it was introduced by Regulation (EU) 2017/1369. One of EPREL's objectives is to support market surveillance authorities in carrying out their tasks in monitoring compliance. The other task is to provide the public with information about products placed on the market with regard to their energy labels and product information sheets. The database is also helpful in providing up-to-date market data for the regulatory process on revisions of product-specific labels and information sheets.

EPREL is therefore intended to comprise two parts: the compliance part accessible only to market surveillance authorities including technical information for the compliance control, and the public part accessible by the online portal, as well as by scanning the QR code on the energy label. This part

includes only information derived from the Energy Label and partly form the product information sheet. The public EPREL website for citizens was officially launched in May 2022 at https://eprel.ec.europa.eu/.

The obligation to register the product in EPREL before placing on the EU/EEA market is in force since 2019. It applies to suppliers of products that require an energy label. These include residential ventilation units.

The mandatory specific parts of the technical documentation that the supplier shall upload to EPREL cover:

- a general description of the model, sufficient for it to be unequivocally and easily identified,
- references to the harmonised standards applied or other measurement standards used or testing conditions if not described sufficiently in standards,
- specific precautions that shall be taken when the model is assembled, installed, maintained or tested,
- the measured technical parameters of the model,
- the calculations performed with the measured parameters.

On a voluntary basis, the supplier can also upload additional parts of the technical documentation file for conformity assessment.

ERPEL is the latest but not the only one tool used by MSAs for information exchange. One of them is ICSMS (Information and Communication System for Market Surveillance) which is a comprehensive communication platform for market surveillance on products and for mutual recognition for goods. This system provides information on non-compliant products (test results, product identification data, economic operator information, information on measures taken by surveillance authorities etc.) to be quickly and efficiently shared between authorities. The other is RAPEX (Rapid Exchange of Information System) which is the EU rapid alert system for unsafe consumer products including potentially harmful ingredients or posting a risk to the user (like electric shock or ignition hazard) due to technical faults.

KEY LEANRING POINTS

- RVUs placed on the EU market must comply with ecodesign and energy labelling requirements.
- The supplier, which may be the manufacturer, importer or authorised representative, is responsible for the compliance of the product.
- An installer who purchases a product directly from outside the EU (not from an EU-based entity) and installs it in the EU market becomes a supplier and must comply with all its obligations.
- Based on the conformity assessment procedure, including testing, the supplier declares compliance by affixing the CE mark on the product and issuing the EC declaration of conformity.
- The conformity assessment procedure for RVUs does not require involvement of an accredited third-party, which means that the supplier takes sole responsibility for the declared product data and its compliance with the requirements.

- Monitoring of compliance of residential ventilation units placed on the EU market is the task of Market Surveillance Authorities (MSA) in Member States.
- Bidirectional RVUs are not a stand-alone 'plug & play' product but are part of the ventilation system and their actual performance depends on the characteristics of the system. Therefore, not only placing on the market but also putting into service by a professional installer in accordance with supplier's instructions, must be taken into account.
- Effective market surveillance is essential to achieve the underlying environmental objectives of ecodesign and energy labelling requirements. It is also necessary to protect the interests of product users, but also of the manufacturers, ensuring a level playing field in the market.
- EPREL is a database where suppliers must register their products placed on the EU Market and which facilitates market surveillance. The public interface of EPREL enables citizens to check the declared compliance data of a product and make an educated choice of the most energy efficient RVUs.

3 Products covered by Regulations (EU) 1253/2014 and 1254/2014

3.1 Types and variants of Bidirectional RVUs

Specific requirements for ventilation units with respect to ecodesign are laid down in Regulation (EU) 1253/2014 while with respect to energy labelling in Regulation (EU) 1254/2014.

The ecodesign regulation applies to both non-residential (NRVU) and residential (RVU) ventilation units and the energy labelling regulation applies only to RVUs since the obligation for energy labelling does not concern NRVU.

According to the definition used in both regulations, each ventilation unit of maximum airflow rate up to 250 m^3/h is considered as a residential ventilation unit. A ventilation unit having a maximum airflow rate between 250 and 1000 m^3/h is also considered a residential unit, provided that its manufacturer declares its intended use solely for residential ventilation applications.

Of note is that the actual purpose of a ventilation system in which a unit installed has no relevance. It means that the unit classified as a residential ventilation unit according to the above flow rate criteria but used in a non-residential ventilation system, must meet all requirements for residential ventilation units.

The Regulations distinguish between unidirectional ventilation units (UVU) and bidirectional ventilation units (BVU).

The UVU is a ventilation unit producing an airflow in one direction only, which can be either from indoors to outdoors or from outdoors to indoors. In other words, it is a supply or exhaust ventilation unit. Mechanically supplied or exhausted air flow must be compensated by natural air supply or exhaust. Whereas the BVU is a ventilation unit that produces an air flow between indoors and outdoors and is equipped with both exhaust and supply fans. In other words, it is a supply and exhaust ventilation unit.

Furthermore, regarding the main types of ventilation units, the regulations distinguish between ducted and non-ducted units. The ducted ventilation unit is intended to ventilate one or more rooms and the ventilation air is distributed by means of the ductwork. Therefore, this kind of unit is equipped with duct connections.

The non-ducted ventilation unit is intended to ventilate the single room in which it is installed. This kind of unit is not connected to the ductwork and has no duct connections.

The way of determining the maximum flow rate differs for ducted and non-ducted ventilation units. For ducted units, it is the maximum airflow rate that can be achieved at an external static pressure difference of 100 Pa. Whereas, for non-ducted units it is the airflow rate at the lowest achievable total pressure difference to be chosen from a set of values of 10 (minimum)-20- 50-100-150-200-250 Pa, whichever is equal or just below the measured pressure difference value. The maximum air flow rate is determined at standard conditions (20°C and 101 325 Pa) for a complete unit including clean air filters.

This guidance document does not address UVUs and solely focuses on bidirectional ducted and non-ducted residential ventilation units. The general characteristic of these products is presented below.

3.1.1 Ducted bidirectional units

In general, all units include the following main components: supply and exhaust fans, heat recovery exchanger, outdoor and exhaust air filters, and integrated control system. Each bidirectional RVU with a power input ≥ 30 W per air stream must also be equipped with a thermal by-pass facility, to circumvent the heat recovery exchanger or to control its performance. For units with a rotary heat exchanger, rotor speed control is sufficient to meet this requirement. For other types of heat recovery, solutions such as physical airflow bypass, summer box and control of air flow may be used.
For the vast majority of units, all components are embedded in a compact casing. There is however a group of units that must be assembled on site (separately supplied elements like a heat exchanger or fans to be integrated in the ductwork). In addition to the components mentioned above, some devices comprise elements like a heater (mostly electric) or cooker hood by-pass for heat exchanger.

There are three types of units by installation type: wall-mounted, floor mounted, and suspended under ceiling. Most devices for floor mounting can be also suspended. Another group consists of units for facade mounting (in the external wall of a building).

3.1.2 Non-ducted bidirectional units

This group of product includes ventilation units containing fans for mechanical supply and exhaust, air filters, air-to-air heat exchanger for heat recovery and possibly humidity recovery, control system, inlet and outlet grilles, alternating heat exchangers which provide separate supply and exhaust air flows. They can be provided either in one assembly, or in more than one assembly, the separate assemblies of which are designed to be used together. For alternating RVUs with a power input ≥ 30 W per air stream, the thermal by-pass can be implemented by turning off the alternating flow and operating with flow in one direction only (one unit supplies air and the other extracts air). If a stand-alone alternating RVU is installed, then the thermal by-pass mode must be supported by supply/exhaust grills in the facade (openings) in analogy with UVU ventilation systems and the same information requirements for instructions to installation of these are followed as described in Annex IV (r).

KEY LEANRING POINTS

- Ecodesign and energy labelling requirements for residential ventilation units are laid down respectively in Regulation (EU) 1253/2014 and Regulation (EU) 1254/2014
- The regulations provide definitions of unit types covered by the requirements and the exclusions. Some requirements apply only to specific unit types.
- The main types of bidirectional RVUs are the ducted and non-ducted units.

4 Supplier's obligations resulting from Ecodesign and Energy Labelling Regulations

The specific ecodesign and energy labelling requirements for residential ventilations units are respectively set out in Regulation (EU) 1253/2014 and Regulation (EU) 1254/2014. The scope, exemptions and definitions are the same for both regulations, and their requirements are interrelated.

The supplier of a residential ventilation unit within the scope of regulations must comply with:

- Specific ecodesign requirements.
- Information requirements.
- Energy labelling requirements.

4.1 Specific ecodesign requirements

Ecodesign requirements are set out in Annex II to Regulation (EU) 1253/2014. They concern the energy consumption limit, specific design features and necessary accessories. In addition, for non-ducted units, a limit for the sound power level at reference airflow is set.

More specifically, according to requirements in force from 2018,

- **SEC value of a unit, calculated for average climate cannot be more than – 20 kWh/(m²a).**
  SEC stands for 'specific energy consumption' and it is a coefficient expressed in kWh/(m²a) which reflects the energy consumed for ventilation per m² heated area of a dwelling or a building. Its value takes into consideration several factors, including heat recovery efficiency, electric power consumption, as well as ventilation and fan speed control. It is calculated according to annex VIII to the regulation, based on tested performance of a unit and default coefficients applicable for a specific case. For more details on determination of SEC see paragraph 4.2.2.

- **All units, except for dual use units, must be equipped with a multi-speed or variable speed drive fan(s).**
  Multi-speed drive means a fan motor capable of operating at least three fixed speeds + zero (off). Variable speed drive is a fan motor of which the speed can be continuously adjusted by means of an electronic controller. The controller can be integrated into the motor or separately delivered. Exempted from this requirement are dual use units: ventilation units designed both for ventilation and smoke extraction.

- **Each Bidirectional unit must be equipped with heat recovery and a thermal by-pass facility**.
  Under exemptions in the Regulation, this requirement does not apply to small RVUs with an electric power input of less than 30 W per air stream.

- **Ventilation units with air filters must be equipped with a visual filter change warning**.

- **Non-ducted units including ventilation units intended to be equipped with one duct connection on either supply or extract air side shall have a maximum sound power level (L_{WA}) of 40 dB at reference airflow**.

4.1.1 Supplier obligations

The supplier must ensure that the ventilation units placed on the market comply with the above requirements. To this end, the supplier has to follow a conformity assessment procedure using either the design control system or the management system for assessing conformity (see also paragraph 2.1.1). In case of the design control system, these measures involve at least:

As regards documentation

Establishing the technical documentation file that enables to assess the conformity of the ventilation unit with requirements. The documentation must contain:

- a general description of the product and of its intended use.
- product design specification relating to ecodesign aspects of the product.
- a list of the appropriate harmonised standards applied (fully or partly) or a description of the solution adopted to meet requirements if the harmonised standards were not applied or not available.
- the results of measurements and calculations on the ecodesign requirements carried out, including details of compliance with the requirements. Calculation of the specific energy consumption (SEC) requirement must be carried out in accordance with Annex VIII to Regulation (EU) 1253/2104.
- set of product information according to annex IV to Regulation (EU) 1253/2014 (the scope of information requirements is outlined in paragraph 4.2).

Where the information included in the technical documentation for a particular ventilation unit model was obtained by calculation based on design, or extrapolation from other ventilation units, or both, the technical documentation should include details of such calculations and/or extrapolations, details of tests undertaken by manufacturers to verify the accuracy of the calculations and extrapolations. The supplier must keep relevant documents relating to the conformity assessment performed and declarations of conformity issued available for inspection by Member States for a period of 10 years after the last of that product has been manufactured.

There are no specific requirements as to the form of the documentation, but it can be generally assumed that the better the quality and consistency of the conformity assessment documentation drawn up by the supplier, the lower the risk of non-compliance. It should be also noted that the measurements documentation, that may typically consist of several test reports, should contain summary and conclusions demonstrating compliance.

As regards manufacturing

The manufacturer should take all measures to ensure that the ventilation unit is produced in compliance with the design specification of technical documentation and with ecodesign requirements set out in Regulation (EU) 1253/2014.

The above provision, which stems directly from Directive 2009/125/EC, means that the manufacturer has complete freedom to choose how to manage production and its quality so that compliance of the product is ensured. However, given the complexity of RVUs manufacturing, in the opinion of Eurovent members the minimum measure to ensure compliance should be the implementation and operation in accordance with an approved quality management system (e.g., EN ISO 9001).

4.2 Information requirements

In addition to complying with specific ecodesign requirement on the product performance and design, the RVU manufacturer must provide product information covering several items which are listed in Annex IV to Regulation (EU) 1253/2014.

All required information must be available in the technical documentation of RVUs, on free access websites of manufacturers, their authorised representatives and importers, and be included in the technical documentation file for conformity assessment (see also paragraph 4.1.1). The information presented on free access websites, including the energy label, must be identical to the information in the technical documentation and contain detailed disassembly instructions.

The scope of the information required includes identification of the manufacturer and unit model, description of the design features and detailed technical specifications related to ecodesign requirements. The declared technical characteristics are determined based on measurements and calculations.

According to both EU Regulations, 1253/2014 and 1254/2014, the technical characteristics and information of the unit subject to requirements should be measured and calculated using reliable, accurate and reproducible methods which take into account recognised state-of-the-art measurement and calculation methods, including, where available, harmonised standards adopted by the European standardisation bodies. Application of these methods, outlined hereafter, provides a presumption of conformity of the tests with the letter of the regulation. Furthermore, these methods are used by accredited laboratories, also for the compliance check tests commissioned by the MSAs.

In 2016, the Commission communication (2016/C 416/06) was published to provide transitional methods of measurement and calculation of the parameter referred to in Regulation (EU) 1253/2014. The transitional methods were intended to be replaced by a harmonised standard when available. The harmonised standard indicates, in its Annex ZA, the relationship between this particular European Standard and the essential requirements of the Regulation to which it relates. The recently published revision of EN 13142:2021 was developed under the standardisation mandate M/537/C(2015) 8325, as a candidate harmonised standard for Regulation (EU) 1253/2014, but the process of its publication the Official Journal of the European Union as a harmonised standard is still pending. Along with EN 13142:2021, the EN 13141 series of standards, referred to it the Commission communication (2016/C 416/06), were revised and published.

The following paragraphs present guidance on how to determine the required information based on the Commission communication (2016/C 416/06) and the latest editions of the EN 13141 standards referred to therein, which must be considered in conjunction with EN 13142:2021.

4.2.1 Measured values

The parameters to be measured provide the necessary basis for confirming compliance with ecodesign requirements. They are also necessary for determining the SEC value to be calculated.

There are no specific requirements concerning the way of carrying out measurements and tests (e.g., the need to involve an accrediting laboratory and specification of test rigs). The legislation leaves complete freedom to the manufacturer in this respect. However, in the opinion of Eurovent members, to provide reliability of declared parameters, the measurements should be carried out in the manufacturer's own professional measuring laboratory with traceability on measuring equipment and methods, otherwise in an accredited third-party laboratory. Name of the testing laboratory and report

number must be specified in the documentation. EN 13141-7 or EN 13141-8 need to be indicated as measuring standards in the EC Declaration of Conformity. In case of extrapolation of values, a thorough clarification on the method shall be provided.

The major parameters to test include:

4.2.1.1 Maximum flow rate

Maximum flow rate, expressed in m^3/h, is measured based on EN 13141-7:2021 for ducted units, and according to EN 13141-8:2022 for non-ducted units.

4.2.1.2 Reference flow rate

Reference flow rate, expressed in m^3/s, and corresponding reference pressure difference in Pa, are determined from the maximum flow rate and corresponding pressure based on measured air flow/pressure curves of the unit, following EN 13141-7:2021 for ducted units, and EN 13141-8:2022 for non-ducted units.

With regard to the reference pressure difference, EN 13141-7 provides for either its measurement or its determination by interpolation between measured points.

4.2.1.3 Effective (total) power input

Total electric power input, expressed in W, is measured at reference flow rate and corresponding external total pressure difference according to EN 13141-7:2021 for ducted units and according to EN 13141-8:2022 for non-ducted units. The measurement includes summarised power consumption of both fans, control equipment (including remote control) and auxiliaries (e.g., motor of an operating rotary heat exchanger, if applied). Additional electrical heating devices used for defrosting during the cold climate test are excluded.

EN 13141-7 provides for either measurement of the power input or its determination by interpolation between measured points.

4.2.1.4 Thermal efficiency of heat recovery (η_t)

Thermal efficiency is tested at reference air flow with balance mass flows, under dry conditions, and indoor-outdoor temperature difference of 13 K. For ducted residential BVUs, the test should be performed according to EN 13141-7:2021 and only the temperature ratio (η_0) measured according to this standard shall be declared as the thermal efficiency (η_t) defined in the Regulation. Other temperature ratios defined in EN 13142:2021 (i.e. η_1 to η_5) do not apply for the ecodesign compliance declaration.

For non-ducted BVUs (single room installation), EN 13141-8:2022 should be used. It must be noted that the thermal efficiency must not be tested according to EN 308 as was customary in some countries in the past.

4.2.1.5 Sound power level (L_{WA})

While only for non-ducted units including ventilation units intended to be equipped with one duct connection on either supply or extract, the sound power level limit must be met, it must be measured and declared for all residential ventilation units. The sound power level can be measured according to EN ISO 9614-2 (sound intensity scanning) or EN ISO 3744 or EN ISO 3746 (sound pressure in free field). To reduce test costs, it is often preferred to use the sound intensity scanning method. Alternatively, EN ISO 3743-1 or EN ISO 3741 sound power in reverberation room can be used. The measured value shall be reported to the nearest integer.

4.2.1.6 Maximum external and internal leakage or carry over

External and internal leakages have a significant impact on the airflow and thermal performance of the unit. With too high leakages the thermal performance (see 4.2.1.4) cannot be tested due to measurement uncertainty. Both internal and external leakage can be tested according to EN 13141-7:2021. For BVUs with regenerative (rotary) heat exchangers, Regulation (EU) 1253/2014 provides for declaration of maximum internal and external leakage rates or carry over, but EN 13141-7 does not define a solely carry over test. The EN 13141-7 test results is the value of total internal leakage including carry over but without external leakage (if the in-duct tracer gas method is used) or the total internal leakage including carry over and external leakage (if the chamber method is used).

It must be noted that when adding a product to the current version of EPREL database (see 2.3), for bidirectional RVUs with regenerative heat exchanger, only the carry over value can be entered. Inability to enter the internal and external leakage rates into the EPREL database for regenerative exchangers, means that data for same products may not be correctly declared.

4.2.2 Calculated values

The major value to be calculated is the specific energy consumption (SEC). The method of calculating SEC is set out in Annex VIII to Regulation (EU) 1253/2014. Its value calculated for average climate is used to confirm compliance with specific ecodesign requirements and to determine the SEC class (see paragraph 4.3). Furthermore, the SEC value calculated for each applicable climate zone must be provided in information requirements. The formula for the SEC value takes into consideration several variables, in particular:

- Measured or calculated from measurements values:
  - Thermal efficiency of heat recovery (see 4.2.1.4)
  - Specific Power Input (SPI) calculated from the measured Reference flow rate (see 4.2.1.2) and Effective power input (see 4.2.1.3)
- Coefficients assumed depending on the declared control system features:
  - Ventilation control factor (CTRL)
  - Motor and drive control (x-value)
- Several fixed or predefined coefficients assumed according to the climate zone and/or type of heat recovery exchangers (recuperative or regenerative).

As regards the ventilation control factor (CTRL), its value to calculate SEC shall be applied as indicated below:

CTRL = 1 For units with any control type that does not use demand control.

CTRL = 0.95 For units with clock control, which means a daytime-controlled human interface to control the fan speed/flow rate of the ventilation unit, with at least seven weekday manual settings of the adjustable flow rate for at least two setback periods, i.e., periods in which a reduced or no flow rate applies.

CTRL = 0.85 For units with central demand control which continuously regulates the fan speed(s) and flow rate at the entire system level to the actual demand determined by one sensor (for indoor air quality or indoor humidity). This CTRL value can be applied in the SEC calculation for units equipped with a controller that allows the fan speed(s) to be continuously regulated and the sensor to be connected and operated according to an

appropriate control logic. The sensor does not have to be incorporated in the unit and can be delivered separately (beyond the delivery of the unit itself).

CTRL = 0.65 For units with local demand control which continuously regulates the fan speed(s) to adjust ventilation air flows in individual rooms/zones.
For ducted BVUs this means that at least two sensors placed local in zones/rooms or in the airstream to/from the room/zones where the airflow to the individual rooms/zones is regulated according to the local demands measured by the sensors in/to/from the room/zone. The local flow to/from the room/zones is normally regulated by dampers. The total flow provided by the fans in the unit is operated according to the sum of the individual local demands, usually by pressure sensor(s). This CTRL value can be applied in SEC calculations for units equipped a controller that allows to continuously regulate the fan speed(s), to connect and operate according to an appropriate control logic at least two demand sensors (IAQ or humidity), connect and operate the necessary auxiliary duct devices and sensors (if not incorporated into unit) for individual adjustment of air flow rate in rooms/zones served by demand sensors. The sensors and auxiliary devices do not have to be incorporated in the unit and can be delivered separately (beyond the delivery of the unit itself).
For non-ducted BVUs it means one sensor in the room/zone and direct adjustment of the unit flow rate, which only serves this individual room/zone.

4.3 Energy labelling requirements

Under the requirements for energy labelling set out in Regulation (EU) 1254/2014 each residential ventilation units placed on the EU market must be accompanied by a printed label, which must be provided at least in the packing of the unit. This responsibility lies with the suppliers (manufacturers, importers or authorised representatives).

The format of the label and the information it contains are specified in Annex III to the Regulation. The label layout for BVUs is presented on Figure 1. In addition to suppliers' name and model identifier it displays

- Energy efficiency class (A+ to G) determined based on SEC value
- Maximum flow rate (measured as explained in 4.2.1.1)
- Sound power level at reference flow rate (measured as explained in 4.2.1.5)

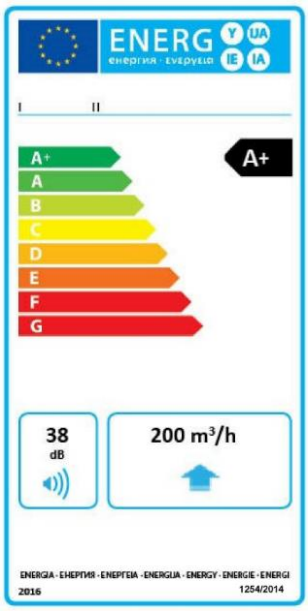


Figure 1. BVU Label

In addition to the label, the supplier must provide a product fiche which has to be supplied at least in the packing of the unit. The fiche should be included in the product brochure or other literature supplied with the product. An electronic product fiche must be made available to dealers and on free access websites. The information to be provided in the fiche is set out in Annex IV to the Regulation. Besides the items covered under the information requirements of Regulation (EU) 1253/2014, (see paragraph 4.2) it contains additional elements. These include the annual electricity consumption (AEC) and the annual heating saved (AHS), which are effectively components of the SEC equation.

Further to the above requirements for suppliers, the Regulation sets out responsibilities of dealers (Article 4) and information requirements for end-users when they can only see the product on the Internet (Annex VI) and in case of sale, hire or hire-purchase through the internet (Annex VII).

The market surveillance authorities may require a supplier to make available the technical documentation set out in Annex V.

KEY LEANRING POINTS

- The supplier of an RVU must comply with specific ecodesign, information and energy labelling requirements.
- The specific ecodesign requirements include the performance parameters and design of the unit. To ensure that a unit placed on the EU market meets the requirements, the supplier must carry out a conformity assessment procedure, and produce the appropriate technical documentation that allows verification of compliance by MSAs. Appropriate manufacturing requirements must also be met to ensure that the unit is manufactured in accordance with the design specification of the technical documentation.
- Information requirements include items which are listed in the Regulations. These must be available in the technical documentation of a product and on free access website of the supplier. The information requirements concern the unit design features and detailed technical specifications related to ecodesign requirements. The technical specifications are determined based on test measurements and calculations.
- In accordance with energy labelling requirements, each unit placed on the EU market must be accompanied by a printed label presenting its energy efficiency class and other ecodesign performance characteristics. The energy class label aims to facilitate consumer choice of the most energy-efficient products.

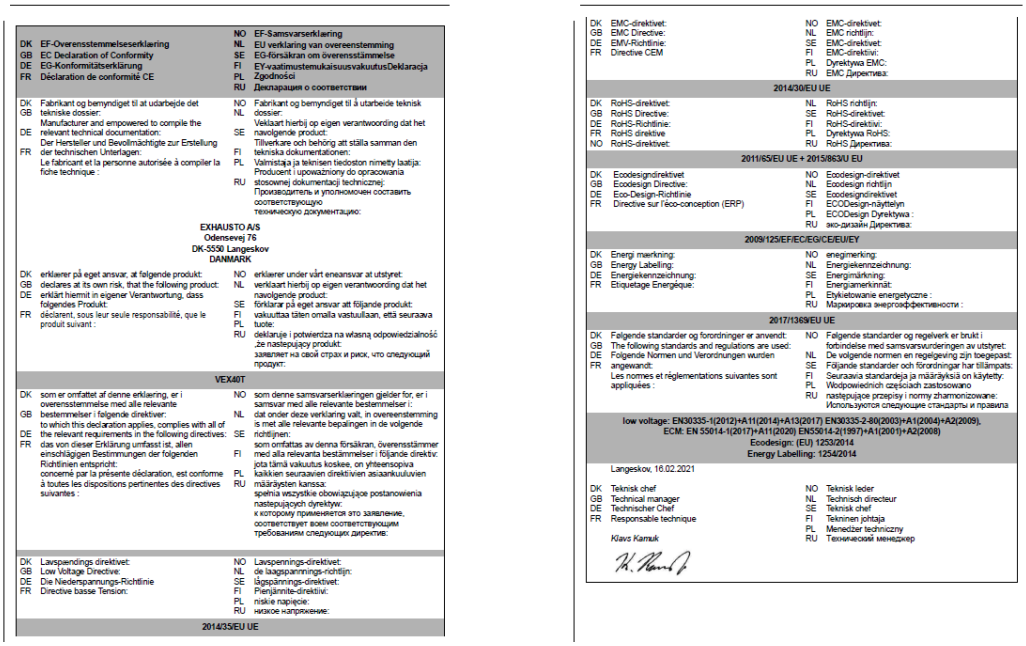
5 EC Declaration of Conformity

The EC declaration of conformity (DoC) is a mandatory document that a manufacturer or its authorised representative need to sign to declare that the products comply with the EU requirements. By signing the DoC the manufacturer or authorised representative takes full responsibility for product's compliance with the applicable EU law.

The EC declaration of conformity should contain the following information:

- The name and address of the manufacturer or of its authorised representative.
- Description of the model sufficient for its unambiguous identification. It may include a colour image of sufficient clarity to enable the identification of the product.
- The relevant legislation with which the product complies (e.g. Ecodesign Directive 2009/125/EC, Energy labelling Regulation 2017/1369, other legislation as per Paragraph 6).
- References of the harmonised standards applied and/or other technical standards and specifications used.
- The identification and signature of the person empowered to bind the manufacturer or its authorised representative.
- The date the declaration was issued.

An example of DoC for a residential BVU is shown in Figure 2.



DK EF-Overensstemmelseserklæring
GB EC Declaration of Conformity
DE EG-Konformitätserklärung
FR Déclaration de conformité CE
NO EF-Samsvarserklæring
NL EU verklaring van overeenstemming
SE EG-försäkran om överensstämmelse
FI EY-vaatimustenmukaisuusvakuutusDeklaracja
PL Zgodności
RU Декларация о соответствии

DK Fabrikant og bemyndiget til at udarbejde det tekniske dossier:
GB Manufacturer and empowered to compile the
DE relevant technical documentation:
Der Hersteller und Bevollmächtigte zur Erstellung der technischen Unterlagen:
FR Le fabricant et la personne autorisée à compiler la fiche technique :
NO Fabrikant og bemyndiget til å utarbeide teknisk dossier:
NL Vekkaart hierbij op eigen verantwoording dat het
SE navolgende product:
Tillverkare och behörig att ställa samman den tekniska dokumentationen:
FI Valmistaja ja teknisen tiedoston nimetty laatija:
PL Producent i upoważniony do opracowania
RU stosownej dokumentacji technicznej:
Производитель и уполномочен составить соответствующую техническую документацию:

EXHAUSTO A/S
Odensevej 76
DK-5550 Langeskov
DANMARK

DK erklærer på eget ansvar, at følgende produkt:
GB declares at its own risk, that the following product:
DE erklärt hiermit in eigener Verantwortung, dass folgendes Produkt:
FR déclarent, sous leur seule responsabilité, que le produit suivant :
NO erklærer under vårt eneansvar at utstyret:
NL verklaart hierbij op eigen verantwoording dat het navolgende product:
SE förklarar på eget ansvar att följande produkt:
FI vakuuttaa täten omalla vastuullaan, että seuraava tuote:
PL deklaruje i potwierdza na własną odpowiedzialność ,że następujący produkt:
RU заявляет на свой страх и риск, что следующий продукт:

VEX40T

DK som er omfattet af denne erklæring, er i overensstemmelse med alle relevante
GB bestemmelser i følgende direktiver:
to which this declaration applies, complies with all of
DE the relevant requirements in the following directives:
FR das von dieser Erklärung umfasst ist, allen einschlägigen Bestimmungen der folgenden Richtlinien entspricht:
concerné par la présente déclaration, est conforme à toutes les dispositions pertinentes des directives suivantes :
NO som denne samsvarserklæringen gjelder for, er i samsvar med alle relevante bestemmelser i:
NL dat onder deze verklaring valt, in overeenstemming is met alle relevante bepalingen in de volgende richtlijnen:
SE som omfattas av denna försäkran, överensstämmer med alla relevanta bestämmelser i följande direktiv:
FI jota tämä vakuutus koskee, on yhteensopiva kaikkien seuraavien direktiivien asiaankuuluvien määräysten kanssa:
PL spełnia wszystkie obowiązujące postanowienia następujących dyrektyw:
RU к которому применяется это заявление, соответствует всем соответствующим требованиям следующих директив:

DK Lavspændings direktivet:
GB Low Voltage Directive:
DE Die Niederspannungs-Richtlinie
FR Directive basse Tension:
NO Lavspennings-direktivet:
NL de laagspannings-richtlijn:
SE lågspännings-direktivet:
FI Pienjännite-direktiivi:
PL niskie napięcie:
RU низкое напряжение:

2014/35/EU UE

DK EMC-direktivet:
GB EMC Directive:
DE EMV-Richtlinie:
FR Directive CEM
NO EMC-direktivet:
NL EMC richtlijn:
SE EMC-direktivet:
FI EMC-direktiivi:
PL Dyrektywa EMC:
RU EMC Директива:

2014/30/EU UE

DK RoHS-direktivet:
GB RoHS Directive:
DE RoHS-Richtlinie:
FR RoHS directive
NO RoHS-direktivet:
NL RoHS richtlijn:
SE RoHS-direktivet:
FI RoHS-direktiivi:
PL Dyrektywa RoHS:
RU RoHS Директива:

2011/65/EU UE + 2015/863/U EU

DK Ecodesigndirektivet
GB Ecodesign Directive:
DE Eco-Design-Richtlinie
FR Directive sur l'éco-conception (ERP)
NO Ecodesign-direktivet
NL Ecodesign richtlijn
SE Ecodesigndirektivet
FI ECODesign-näyttelyn
PL ECODesign Dyrektywa :
RU эко-дизайн Директива:

2009/125/EF/EC/EG/CE/EU/EY

DK Energi mærkning:
GB Energy Labelling:
DE Energiekennzeichnung:
FR Etiquetage Energèque:
NO enegimerking:
NL Energiekennzeichnung:
SE Energimärkning:
FI Energiamerkinnät:
PL Etykietowanie energetyczne :
RU Маркировка энергоэффективности :

2017/1369/EU UE

DK Følgende standarder og forordninger er anvendt:
GB The following standards and regulations are used:
DE Folgende Normen und Verordnungen wurden angewandt:
FR Les normes et réglementations suivantes sont appliquées :
NO Følgende standarder og regelverk er brukt i forbindelse med samsvarsvurderingen av utstyret:
NL De volgende normen en regelgeving zijn toegepast:
SE Följande standarder och förordningar har tillämpats:
FI Seuraavia standardeja ja määräyksiä on käytetty:
PL Wodpowiednich częściach zastosowano
RU następujące przepisy i normy zharmonizowane:
Используются следующие стандарты и правила

low voltage: EN30335-1(2012)+A11(2014)+A13(2017) EN30335-2-80(2003)+A1(2004)+A2(2009).
ECM: EN 55014-1(2017)+A11(2020) EN55014-2(1997)+A1(2001)+A2(2008)
Ecodesign: (EU) 1253/2014
Energy Labelling: 1254/2014

Langeskov, 16.02.2021

DK Teknisk chef
GB Technical manager
DE Technischer Chef
FR Responsable technique
NO Teknisk leder
NL Technisch directeur
SE Teknisk chef
FI Tekninen johtaja
PL Menedżer techniczny
RU Технический менеджер

Klavs Kamuk

Figure 2. EC Declaration of conformity for a BVU

KEY LEANRING POINTS

- The manufacturer of an RVU or its authorised representative must issue the EC declaration of conformity which attest that the product meets all the applicable EU requirements, and that the manufacturer/representative takes responsibility for the product's compliance.

6 Overview of supplier's CE marking and declaration obligations resulting from other Directives and Regulations

A brief overview of legislation other than ecodesign and energy labelling which the RVUs must comply with is outlined in the following paragraphs. The summary of the applicable directives that need to be included in the DoC depending on the intended RVU use and radio remote control is presented in section 6.6.

6.1 Low Voltage Directive (LVD) 2014/35/EU

Declaration against the Low Voltage Directive applies to RVUs that are not controlled remotely via a radio module and are intended exclusively for domestic use, i.e., by private persons in domestic environments (non-commercial).

6.2 Machinery Directive (MD) 2006/42/EC

For RVUs that are intended for both domestic and commercial uses, the declaration of conformity with the Machine Directive applies. LVD compliance is then excluded but the relevant LVD requirements shall be applied as required by the Machinery Directive.

6.3 Electromagnetic Compatibility (EMC) Directive 2014/30/EU

RVUs that are not remotely controlled via radio must be CE marked in accordance with the EMC directive and the Declaration of Conformity (DoC) shall indicate the harmonized standards that have been applied in the design of the product in this respect.

6.4 Radio Equipment Directive (RED) 2014/53/EU

If the RVU is controlled remotely via a radio module, it must comply with the Radio Equipment Directive requirements. RED must be listed on the DoC. In this case the LVD and EMC do not apply.

6.5 Hazardous materials in electrical and electronic equipment RoHS 2011/65/EU

RVUs as intended for use by private consumers should be CE marked and declared regarding RoHS 2011/65/EU. The Declaration of Conformity should indicate applicable criteria.

6.6 Summary of applicable Directives to be included in the DoC

Applicable Directives to be included in the DoC depending on the intended use and radio control					
RVU type	LVD	EMC	MD	RED	RoHS
Intended for domestic use only – not controlled remotely via radio module	YES	YES	NO	NO	YES
Intended for commercial use – not controlled remotely via radio module	NO*	YES	YES	NO	YES
Intended for domestic use only – controlled remotely via radio module	NO**	NO***	NO	YES	YES
Intended for commercial use – controlled remotely via radio module	NO*	NO***	YES	YES	YES

* LVD requirements shall be applied as required by Machinery Directive

** LVD requirements shall be applied as required by RED

*** EMC requirements shall be applied as required by RED

Table 1. Summary of applicable Directives and Regulations which need to be included in the DoC

In addition to the requirements of above-mentioned Directives, RVUs must comply with requirements of the following legislation:

- Waste from Electrical and Electronic Equipment Directive (WEEE) 2012/19/EU
- REACH Regulation (Evaluation, Authorisation and Restriction of Chemicals)

However, these legislative acts do not have to be included in the Declaration of Conformity.

KEY LEANRING POINTS

- In addition to ecodesign and energy labelling requirements, a residential ventilation unit placed on the EU market must comply with all applicable requirements arising from other directives or regulations. It is the responsibility of the supplier to assess which directives and regulations apply and to include them in the EC declaration of conformity.
- The applicable Directives depend on the intended use of the RVU and the radio remote control options.
- RVUs must also comply with other regulations that do not have to be included in the DoC.

7 Effective monitoring of RVU compliance by MSA

This chapter provides suggestions and hints of Eurovent members and partners, on measures which might be helpful in improving the effectiveness of market surveillance and facilitate identification of high-risk non-compliant products on the market.

7.1 Checking procedure for RVUs

Regarding the check procedure for RVUs, it is often seen that first the documentation of the unit is checked and afterwards parameters for the unit are verified in an actual laboratory test.

To do a valuable control of the documentation, it is important that the MSA has the needed knowledge and expertise within the field of ventilation and test of RVUs.

Good practice for market surveillance could be to do documentation check of approximately 30-50 different RVUs. The cost for documentation check is relatively low compared to an actual test in a laboratory.

From the documentation check approx. 5 different units are selected and tested in a laboratory. The selected units should be the ones where the data in the product fiche seems unreliable according to the hints pointed out in following sections.

In general, the screening procedure to identify high risk non-compliance products for further testing, should be focused on units:

- with very low energy consumption compared to other units of the same type and size,
- that are declared by the manufactures as extremely quiet,
- for which the data in EPREL or on the manufacturer's website is incomplete or incorrect,
- with low availability and quality of test reports in EPREL or from the manufacturer (no reports from independent accredited laboratories, no quality management certificate of the manufacturer),
- with AEC values close to threshold values for a worse energy labelling class,
- with general bad quality of mandatory information and problems of getting requested documents.

When screening the documentation, it should be taken into account that the most commonly test verified non-compliances include the following parameters (in order of prevalence):

- SPI, (specific power input),
- η_t (thermal efficiency of heat recovery),
- L_{WA}, (sound power level),
- SEC class (label).

If a unit does not comply with the tolerances set out in table 1 in ANNEX VI '**Verification procedure for market surveillance purposes**' during the test, a three-unit test is usually performed. Here, an agreement between the manufacturer and the MSA is normally reached where the manufacturer pays if one or more does not meet the requirements. The MSA pays if the three-unit test meets the requirements.

Parameter	Verification tolerances
SPI	The measured value shall be no more than 1,07 times the maximum declared value.
Thermal efficiency RVU and NRVU	The measured value shall be no less than 0,93 times the minimum declared value.
SFP_{int}	The measured value shall be no more than 1,07 times the maximum declared value.
Fan efficiency UVU, non-residential	The measured value shall be no less than 0,93 times the minimum declared value.
Sound power level RVU	The measured value shall be no more than the maximum declared value plus 2 dB.
Sound power level NRVU	The measured value shall be no more than the maximum declared value plus 5 dB.

Figure 3. Verification tolerances acc. table 1 in Annex IV to Regulation (EU) 1253/2014

7.1.1 Selection of RVUs for documentation check

To select the RVUs for documentation check EPREL can be used. However, products before August 2017 did not need to be registered in EPREL. The database does not cover the entire market because some manufacturers do not register their products even though it is mandatory.

To cover the entire market, the MSA should contact the national HVAC industry association or international associations like Eurovent for inputs about which products are on the market in the specific country.

The MSA could also do online research to cover the market or ask the national experts in accredited laboratories.

In general, the manufacturers are interested in providing the information needed to the MSA. The industry is interested in a level playing and therefore they often provide information to the national MSA if they see that a product is unreliable. This is often realized in a tender where many manufacturers are involved. For this to happen it is important that the MSA is visible for the industry.

7.1.2 Selection of RVUs for laboratory test

How to select the RVUs for physical test can be done in different ways. The MSA can either buy the RVUs in a wholesale or contact the actual manufacturer. The cost for buying the units is often high, which is why the MSA often decides to get the unit directly from the manufacturer.

Here, good practice is to contact the manufacturer and ask for line-up of at least 10 units. The MSA then selects one of the 10 units and seals it, to make sure that the actual unit is delivered as inspected. Otherwise, it has been seen that the manufacturer delivers a unit with e.g., better sealing and therefore lower internal leakage than the average unit in the same production line.

7.2 Documentation check to effectively identify non-compliances

7.2.1 Product fiche – general check

The MSA shall control that the information in the product fiche is sufficient. According to Annex IV to Regulation (UE) 1254/2014 it shall contain the following information:

(a) supplier's name or trade mark;

(b) supplier's model identifier i.e. the code, usually alphanumeric, used to distinguish a specific residential ventilation unit model from other models with the same trade mark or supplier's name;

(c) specific energy consumption (SEC) in kWh/(m^2.a) for each applicable climate zone and SEC class;

(d) declared typology in accordance with Article 2 of this Regulation (, unidirectional or bidirectional);

(e) type of drive installed or intended to be installed (multi-speed drive or variable speed drive);

(f) type of heat recovery system (recuperative, regenerative, none);

(g) thermal efficiency of heat recovery (in % or 'not applicable' if the product has no heat recovery system);

(h) maximum flow rate in m^3/h;

(i) electric power input of the fan drive, including any motor control equipment, at maximum flow rate (W);

(j) sound power level (L_{WA}), at reference airflow, rounded to the nearest integer;

(k) reference flow rate in m^3/s;

(l) reference pressure difference in Pa;

(m) SPI in W/(m^3/h);

(n) control factor and control typology in accordance with the relevant definitions and classification in Annex VIII Table 1;

(o) declared maximum internal and external leakage rates (%) for bidirectional ventilation units or carry over (for regenerative heat exchangers only), and external leakage rates (%) for ducted unidirectional ventilation units;

(p) mixing rate of non-ducted bidirectional ventilation units not intended to be equipped with one duct connection on either supply or extract air side;

(q) position and description of visual filter warning for RVUs intended for use with filters, including text pointing out the importance of regular filter changes for performance and energy efficiency of the unit;

(r) for unidirectional ventilation systems, instructions to install regulated supply/exhaust grilles in the façade for natural air supply/extraction;

(s) internet address for pre-/dis-assembly instructions;

(t) for non-ducted units only: the airflow sensitivity to pressure variations at + 20 Pa and – 20 Pa;

(u) for non-ducted units only: the indoor/outdoor air tightness in m^3/h;

(v) the annual electricity consumption (AEC) (in kWh electricity/a);

(w) the annual heating saved (AHS) (in kWh primary energy/a) for each type of climate ('average', 'warm', 'cold').

The MSA can also cf. article 3 (1) (c)) and Annex V require a technical documentation which, among other, must contain:

(c) where appropriate, the references of the hamonised standards applied;

(d) where appropriate, the other calculation methods, measurement standards and specifications used;

Which is recommended, as it provides additional information for control e.g., check whether the heat recovery is measured correctly without condensation.

7.2.2 Verification of declared data

When checking the ecodesign documentation of an RVU the following points are essential to evaluate to check and verify the quality of the data. It is not sufficient, only to check if the data is present, it is very important to evaluate if the data is reliable.

In the following, hints for evaluation of relevant data are pointed out. The list is not complete since it is difficult to cover all aspects. It is easy for product experts to cheat and use loopholes in the regulation, which is why it is important that the MSA has sufficient technical knowledge or uses experts on the individual areas in a tender to make a reliable check of the data.

(c) SEC

SEC shall be declared for three climatic zones, but it is the central climate zone in Europe, that provides the 'SEC class' (i.e., energy label).

The SEC value is calculated primarily from CTRL factor, SPI and the thermal efficiency of heat recovery and several correction factors.

$$SEC = t_a \cdot pef \cdot q_{net} \cdot MISC \cdot CTRL^{x} \cdot SPI - t_h \cdot \Delta T_h \cdot \eta_h^{-1} \cdot c_{air} \cdot (q_{ref} - q_{net} \cdot CTRL \cdot MISC \cdot (1-\eta_t)) + Q_{defr}$$

- *Blue - Constant*
- *Red - Measured values*
- *Green - Lookup tables with influence*
- *Orange - Lookup tables outside influence according to climatic zones*
- *MISC* - ducted/non ducted 1.1 or 1.21
- *CTRL* – Manual = 1, Clock = 0.95, central = 0.85, local = 0.65 (more than one sensor)
- *x* – Constant = 1.0, two-speed = 1.2, multispeed = 1.5, variable speed = 2.0 (Dual use units must be multi/variable speed)
- SPI - is the specific power consumption [kW/(m³/h)]
- η_t - is measured at ref. flow, Δt = 13K (EN 13141-7), equal mass flow, without condensation, with fan contributions.

The MSA should verify the SEC factor with a calculation with the parameters listed in the product fiche. It is important that the MSA is aware of the units of measure for the calculation. For instance, the SPI is in kW/(m³/h) and not in W/(m³/h) as declared in the product fiche.

If the product fiche is downloaded via EPREL, then the SEC factor is calculated by the programme and the calculation does not need to be verified.

When evaluating the SEC, pay particular attention to the CTRL factor (which will be addressed later).

Typical indicative values are as follows:

- A normal good RVU with an SPI = 0,00028 kW/(m³/h) and η_t = 85% corresponds to Class A
- High-end RVU with central demand control, VSD, SPI = 0,00017 kW/(m³/h) and η_t = 90% corresponds to Class A+

Since SFP_{ext} expressed in W/(m³/s) is used in building codes in many EU countries, it is worth noting that SPF_{ext} = SPI · $3.6 \cdot 10^6$, where SPI is given in kW/(m³/h).

The impact of respective factors on the SEC value and SEC class can be traced in Table 2. The first three columns depict the impact of thermal efficiency (η_t) with basic manual control and 2-speed fans.

The next three columns show the impact of control type (CTRL) with high thermal efficiency and 2 speed fans. The following two columns demonstrate that A+ class can only be reached with central or local demand control, variable speed fans and very high thermal efficiency. Whereas the last 5 columns show that a UVU without heat recovery can reach at most B class regardless of the value of other factors.

CTRL	MC	MC	MC	CC	CDC	LDC	CDC	LDC	MC	CC	CDC	LDC	LDC
Motor and drive (x-value)	2-s (1,2)	2-s (1,2)	2-s (1,2)	2-s (1,2)	2-s (1,2)	2-s (1,2)	VSD (2)	VSD (2)	2-s (1,2)	2-s (1,2)	2-s (1,2)	2-s (1,2)	VSD (2)
thermal efficiency, η_t	0,5	0,6	0,85	0,85	0,85	0,85	0,9	0,9	0,0	0,0	0,0	0,0	0,0
SPI, W/(m³/h)	0,28	0,28	0,28	0,28	0,28	0,28	0,17	0,28	0,28	0,28	0,28	0,28	0,14
SEC, kWh/(m².a)	-23,9	-27,1	-35,1	-35,8	-37,3	-40,3	-42,1	-42,8	-8,0	-10,1	-14,3	-22,7	-26,0
SEC class	C	B	A	A	A	A	A+	A+	F	E	E	E	B

Table 2. Impact of CTRL on SEC and SEC class

Key:

MC - Manual control (no DCV), CTRL = 1
CC - Clock control (no DCV), CTRL = 0,95
CDC - Central demand control, CTR = 0,85
LDC - Local demand control, CTRL = 0,65
2-s- 2-speed fan control, x-value = 1,2
VSD - Variable speed control, x-value = 2

(f) type of heat recovery system + (g) thermal efficiency of heat recovery

First compare the type of heat exchanger and the value according to the table below where estimated temperature ratio values are listed for different types of heat exchangers.

Heat exchanger	Estimated Ratio
Rotating	70-80%
Counter flow	80-90%

Cross flow	60-70%
Alternating	60-85%

Table 3. Indicative ratio of various heat exchanger types

If the values are higher than the table above, there could be the reason to doubt the values. Then check if the ratio is measured under dry conditions of the HRS, standard air conditions, with balanced mass flow, at reference flow rate, indoor-outdoor temperature difference of 13 K and with no correction for thermal heat gain from fan motors.

This data is not provided in the product fiche. It can be found in the additional technical documentation. It is important because condensation and unequal mass flows can result in a higher value.

(j) sound power level

The sound power level is measured as the sound radiated from the casing at reference airflow. It does not include the sound power from the airflows.

(k) reference flowrate + (l) reference pressure difference

Check if the unit is measured at the reference flowrate (k) and the reference pressure difference (l) which for ducted is 50 Pa and for non-ducted is 0 Pa. For the non-ducted RVUs the unit shall have the facade grilles and/or duct walls transitions mounted, see additional technical documentation.
If the pressure is not 50 Pa for ducted or 0 Pa for non-ducted, see Commission Guidelines, section 3.1. Determination of the reference and maximum flow for ducted RVUs for further information

For non-ducted alternating RVUs the MSA should pay attention to the following description from Commission Communication:

What is the flowrate (maximum, reference or nominal) for an alternating BVU?

In this type of unit, the exhaust airflow and supply airflow are sequential. Thus, the direction of the flow will change from exhaust to supply with a stop period in between. This must be taken into consideration and measured according to EN 13141.8, as described in draft Commission communication VERSION OF 21/12/2015, *Section 4.1, Determination of the reference and maximum flow for ducted RVUs.*

The airflow rate is the actual average flowrate over a cycle period as indicated by the grey area in Figure 11. In short, it is described as the mean value of the average measured airflow (without signs ±) in first one direction (supply) and then in the other direction (exhaust), divided by two, where both airstreams are corrected according to the stop period.

Figure 11 - The airflow rate of alternating units

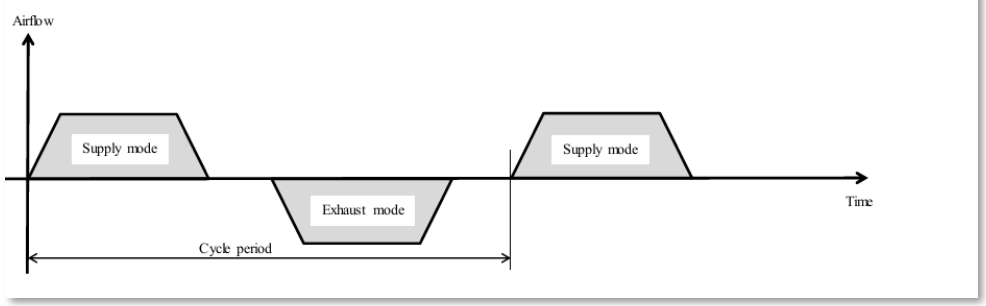


Figure 4. Extract from the Commission guidelines [5]

(m) SPI

Compare the SPI value with the design of the unit. For example, check the type of components such as fans and the type of heat exchanger. If the unit has two heat exchangers, then the SPI is expected to be high.

If possible, check the design of the unit. If the design of the unit, placement of components and airways seem to build up a high pressure drop, then the SPI will be high.

Examples could be a component that instantly reduces the face area and therefore causes a high change in the dynamic pressure drop. Another example could be narrow passage for the airflow. Also, fans with F-wheels usually have a relatively low efficiency. Usually counter- and cross flow heat exchanger have a higher pressure drop and therefore a higher SPI when compared to rotating heat exchangers.

If the SPI is low and the temperature ratio is high, there could also be reason to doubt the values because a high temperature ratio normally will cause a higher SPI value.

The following diagrams, which present the actual SPI- η_t values of compliant units measured in accredited laboratories, can be used as an aid in assessing the credibility of declared data.

Diagram 1 shows data of units with counter flow heat exchanger, and Diagram 2 of units with rotary heat exchanger.

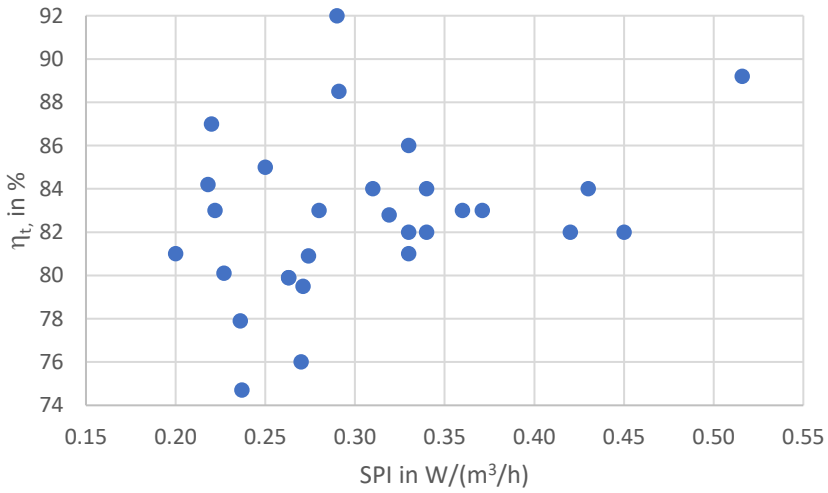


Diagram 1, Chart of SPI- η_t values for units with counter flow heat exchanger tested in accredited laboratories (Source: market surveillance tests by DTI and Eurovent Certita Certification certified data available on the public website www.eurovent-certification.com)

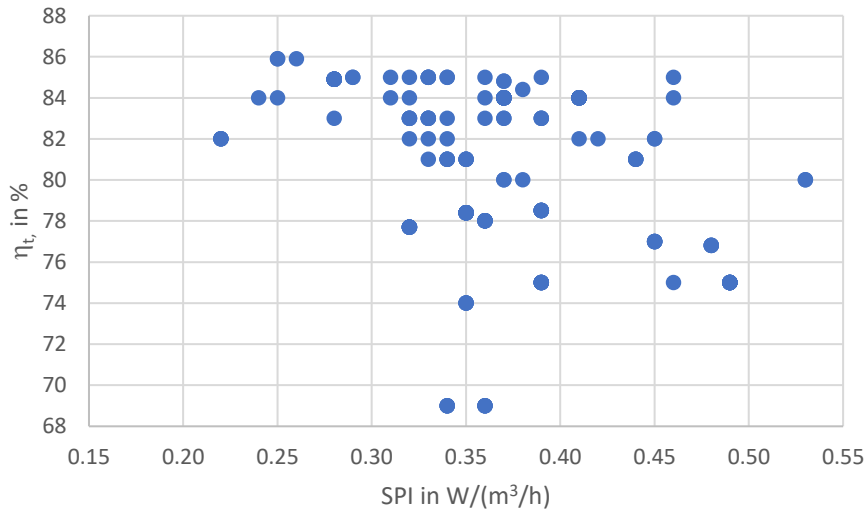


Diagram 2. Chart of SPI- η_t values for units with rotary heat exchanger tested in accredited laboratories (Source: Eurovent Certita Certification certified data available on the public website www.eurovent-certification.com)

(n) CTRL

The CTRL factor has significant influence on the SEC factor and therefore it should be paid great attention.

Check which CTRL factor the SEC calculation is based on. The commonly used controls are central and local demand control.

Central demand control means a control of a ducted ventilation unit that continuously regulates the fan speed(s) and flow rate based on **one** sensor for the whole ventilated building or part of the building at central level.

Local demand requires for ducted units at least **two** sensors **and** airflow control at room level. This means that each individual room shall have a mechanical valve or damper to control the airflows, and the fans shall have variable speed drive.

Check if it is possible for the actual unit to have the control that the CTRL factor refers to.

- Ask for a list with article numbers provided by the supplier to meet the control functions corresponding to CTRL
    - For CTRL 0,85 there should be at least **one sensor** included in the list.
    - For CTRL 0,65 and ducted units there should be at least **two sensors** included and at least **two dampers** that can be automatically controlled, included in the list.
- Ask which control panel must be used accordingly.
- In addition, the MSA should ask for a description of how the system works to achieve CTRL 0.65, CTRL 0.85 and 0.95 and 1 respectively.

If the supplier does not offer delivery of all needed control equipment, check that the documentation contains complete control guidelines (including description of the actual controls of dampers) and a complete list of the necessary elements that are available on the market.

The MSA also needs to be aware of the following if there is no actual bypass in the unit and one fan is switched off and used as a bypass facility:

- The CTRL factor for central demand control (for the calculation of SEC) can only be used if these openings are also regulated by the control system of the units. The performance of the main fan(s) and the opening(s) are to be controlled according to the central demands.
- The CTRL factor for local demand control (for the calculation of SEC) can only be used if these openings are also regulated by local demands by the control system of the unit. The performance of the main fan(s) and the openings are to be controlled according to local demands.

(o) Maximum internal and external leakage rates or carry over for BVUs
If the internal leakage / carry over and / or the external leakage is high (> 6 %) then the unit is likely of low quality. Then there is reason to check and be aware of the values SPI and the thermal efficiency of heat recovery. These values could be incorrect even though they are measured in an actual test because the leakage has a high influence on the test results.

Example: one unit can have a beneficial internal leakage from the warm exhaust airside to the cold supply airside. This can falsely increase the heat recovery efficiency when measured, but it is not the real efficiency. According to the transitional methods (Commission communication 2016/C 416/06) this should be corrected, but it is not always done.

When evaluating a rotary heat exchanger make sure that the purge zone is included for both the test of carry over and efficiency of the heat exchanger. The purge zone reduces the carry over but reduces the efficiency of the heat exchanger.

When evaluating a rotary heat exchanger make sure that the purge zone is included for both the test of carry over and efficiency of the heat exchanger. The purge zone reduces the carry over but reduces the efficiency of the heat exchanger.

(p) mixing rate (only non-ducted)
The efficiency of the heat exchanger should be corrected with the airflow of the mixing rate or measured without mixing.

(q) position and description of visual filter warning for RVU intended for use with filters
Check how this requirement is resolved. In some units, the warning is displayed on the control panel. In that case, check whether the supplied control panel supports this function.

(t) airflow sensitivity (only non-ducted)
With the current methods it is not possible to measure the airflow sensitivity.

(v) AEC and (w) AHS
The unit of measure for AEC, AHS and SEC is [kWh/(m²·a)]. This is in line with the units of the product information requirements on SEC in point (c) of Annex IV.

However, the product information requirements (ecodesign) on AEC and AHS (point (v) and (w) of Annex IV, respectively) are to be reported in [kWh/a]. This means, as from the indication laid down in point 2 of Annex VIII, that the AEC and AHS obtained with the formulas in Annex VIII should then be multiplied by 100m2, and the obtained values (in [kWh/a]) are the ones to be included in the product fiche (=labelling).

KEY LEANRING POINTS

- Monitoring of compliance by market surveillance authorities usually involves desk checks followed by verification tests of RVUs with the identified high risk of non-compliance.
- Successful documentation checking requires a good knowledge of RVUs and their testing, to spot values that are implausible and inconsistent with other parameters. This applies to the measured, calculated and declared values related to the controls, which must correspond to the unit's ability to fulfil the declared functions.
- A number of practical tips presented in this chapter can facilitate the checking and screening of documentation to easily identify products with a high risk of non-compliance with ecodesign and energy labelling requirements.

8 Third-Party Certification

As explained in paragraphs 2 and 2.1.1, the conformity assessment procedure for RVUs does not require involvement of an accredited third-party and the supplier takes sole responsibility for the declared product data and its compliance with the requirements. However, each supplier can join a third-party certification on a voluntary basis to ensure that the data and compliance of its product is independently verified by an accredited body. The certified performance data is essential for Market Surveillance Authorities in facilitating effective compliance monitoring and reducing burden of checking activities.

8.1 Eurovent Certita Certification programme for bidirectional RVUs

Eurovent Certita Certification is a major European accredited third-party certification body for HVACR products, compliant with ISO/IEC 17065:2012 standard. It operates worldwide over 40 certification schemes including the programme for bidirectional RVUs (RAHU). In addition to the parameters defined in EN 13141, the certified characteristics include all the ecodesign required values (SEC, SEC Class, AEC and AHS),

Eurovent-certified product data is available on a public website and can be easily checked by MSAs.

It must be noted that besides obvious benefits for the product compliance monitoring, the Eurovent certification contributes to a level playing field and provides numerous advantages for suppliers, which include increased consumer confidence and enhanced product branding.

KEY LEANRING POINTS

- The voluntary certification programme ensures that the parameters declared by the RVU manufacturer are verified by an independent accredited third party.
- Using by MSAs the certified data facilitate effective compliance monitoring and reduce burden of checking activities, as the performance was tested in accredited laboratory and verified by experts of an accredited certification body.

Annex I. Proposed good practice regarding tenders for test and documentation check of RVUs

As a complement to Chapter 7, this annex presents a proposed good practice regarding tenders for test and documentation check of RVUs. The proposal was developed based on practical experiences of the enteties which carries out compliance tests of RVUs for MSAs of Member States.

Some tenders are large tenders where several MSAs in different countries go together, and some tenders are small where it is the individual country that makes a tender.

For both it is important to keep it simple both regarding the call and wish for documentation, in order to reduce the price, so the MSA gets the most test for the budget, and the additional cost is reduced, as the laboratories use large resources to prepare the offer, which influence the price.

The following are the most important comments and points concerning the tender.

Exclusion Criteria

- Declaration of Honour.

Qualification criteria and requirements

- Information about the company.
- Address, VAT, etc.
- Brief description of the organisation.

Information and documentation regarding the laboratory specifically

- General information about the laboratory, placement, etc.
- Accreditation documentation.
- Method list – the laboratory must be accredited in accordance with the relevant test standards.
- Ask for simple references for CV and experience of the staff for testing, analysing and consulting of MSA's regarding ecodesign.
- Ask about experience of the laboratory the last 5 years and indication of customer references.
- Do not ask for detailed test procedure or descriptions regarding the laboratory etc. – the accreditation documentation is sufficient.
- Be clear about subcontracting.

Financial criteria

- The tender must document the economic key numbers or an average turnover for ten last three years to make sure the tenderer is economically solid and stable.
- Standard conditions for liability are around 3 times the contract amount.
- Do not only look at the price but let the professional quality have a high influence on the estimation on the tenderer. It is their guarantee of the quality of the service provided.

Screening and selection of test objects

- Consult competent professional persons and have communication with the laboratory when screening and at the selection of the test object. This will make sure that the actual test object is relevant for the given market and there is no unexpecting problems for the laboratory regarding the test.

Timeline

- The laboratory must have time to plan the test and have no less than 5 weeks to test the test object after it is arrived.

- Ask for periods where test capacity normally is low in the laboratory for example caused by vacation.
- Fast confirmation of the test report and feedback whether specific case is done, or further action must be taken.

Storage

- The storage and conditions must be described and make sure that the laboratories only have to store a test object 2-3 months after the case is closed.

Financial proposal

- Make it possible for the tenderer to give prices for a specific product group and type of test object,
- In the tender each ventilation product group must be divided regarding the prices, this could be as followed for the RVUS, similar could be worked out for the NRVUs and hoods
    - RVU – price ducted bidirectional ≥ 250 m^3/h
    - RVU - price ducted bidirectional < 250 m^3/h
    - RVU – non ducted < 250 m^3/h
    - RVU – non ducted ≥ 250 m^3/h
- The price regarding the measurements must be described very clearly. This means that it must be described clearly if the MSA want to have the opportunity to pick the type of measurements for example only heat recovery test or measurement of the SPI. But still some test is not possible to carry out without other test, for example is the leakage test relevant for the heat recovery test.
- Prices for each test type could be divided like this:
    - Start up – handling documentation and verification of the test object, information, and communication
    - Leakage test
    - Performance test
        - Maximum flow – air flow, pressure and electrical power consumption
        - Reference flow – air flow, pressure and electrical power consumption
        - Calculation of SPI
    - Heat recovery test
    - Calculation of SEC
    - Reporting
    - Storage and handling of shipping
    - Price for triple testing, if the test object does not pass, for each product group and type

- The MSA must make sure that the wining tenderer is secured as minimum number of tests. It is before experienced that the MSA is not committed to order test in specific product group of the tender is a part of large product group package. The specific laboratory will then have big losses regarding the work an maintain accreditation and quality of the laboratory to comply the requirements in the tender.

About Eurovent

Eurovent is Europe's Industry Association for Indoor Climate (HVAC), Process Cooling, and Food Cold Chain Technologies. Its members from throughout Europe represent more than 1.000 organisations, the majority small and medium-sized manufacturers. Based on objective and verifiable data, these account for a combined annual turnover of more than 30bn EUR, employing around 150.000 people within the association's geographic area. This makes Eurovent one of the largest cross-regional industry committees of its kind. The organisation's activities are based on highly valued democratic decision-making principles, ensuring a level playing field for the entire industry independent from organisation sizes or membership fees.

Our Member Associations

Our Member Associations are major national sector associations from Europe that represent manufacturers in the area of Indoor Climate (HVAC), Process Cooling, Food Cold Chain, and Industrial Ventilation technologies.

The more than 1.000 manufacturers within our network (Eurovent 'Affiliated Manufacturers' and 'Corresponding Members') are represented in Eurovent activities in a democratic and transparent manner.

→ For in-depth information and a list of all our members, visit www.eurovent.eu