

Commission Regulation 1253/2014/EG Exemptions

Regulation 1253/2014 of the Eco-design directive for ventilation units lists a number of equipment's and specific applications which are exempt from complying with its requirements whether because the requirements are not relevant for such products or because the products are to be assessed by another Regulation.

In many cases it is possible Barkell will have no input in the design of the equipment prior to receiving the enquiry. Therefore unless the application of the air handling unit it's clearly stated the time the enquiry is placed we may not be able to identify if the product would be exempt from compliance with the Regulation.

According to Regulation 1253/2014 the following are exempt from complying with the requirements:

- 1. Ventilation units which are unidirectional and equipped with one or more individual fans with a nominal electric power input less than 30 W.**
- 2. Ventilation units which are bidirectional with a total input power to the fans of less than 30W per airstream.**

In essence unit's with individual fan electric power input of less than 30 W or less are excluded from the scope of this Regulation. The information requirements still need to be provided.

Why?

It was considered that the inclusion of these small, usually intermittently operating extraction or supply units (<30 W) would not bring much extra saving but would constitute a significant extra burden, given the large market and the diversity of application.

- 3. Units which are axial or centrifugal fans in a casing according to EU/327/2011 (Fan Regulation).**

Why?

These are already regulated by the fan Regulation EU/327/2011. Assessing performance of such products would lead to double regulation.

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4. Ventilation units designed specifically to operate in potentially explosive atmosphere and therefore should comply with Directive 94/9/EC – ATEX.

As per the ATEX directive (94/9/EC) a potentially explosive atmosphere means an atmosphere which could become explosive due to local or operating conditions.

In order to constitute an exemption this has to be combined with the fact that special designs of fans and motors are used to withstand such environments (explosion proof fans and motors) and as such can limit their performance rendering the requirements of the Regulation not relevant.

It is the responsibility of the end user to specify and categorize the environment in which the product is to be installed (zone and category). The AHU manufacturer is generally not responsible for such assessment.

Why?

ATEX fans are essentially designed to reduce the surface temperature of the motor and to avoid sparks between rotating components. This is achieved by broader clearances and a bigger heat dissipating surface. Such design has implications on the motor efficiency therefore making more difficult to achieve the required efficiency.

5. Ventilation units designed for emergency use only, for short periods of time, and compliant with the basic fire safety requirements set out in Regulation 305/2011 (marketing of construction products).

An example of this exclusion would be an emergency smoke extract unit.

The exclusion does not apply to dual-use units (e.g. where the unit is being continuously used for ventilation but has capacity to provide extra volume in case of an emergency).

Why?

It was considered that the energy use and saving potential of local intermittently operated units are negligible.

Additionally fans that are used only in emergency situations need to be built for the purpose their serving (high temperature) which generally means that the efficiency of the motors is limited.

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6. Ventilation units designed specifically to operate:

- With the motor out of air stream and the motor working temperature (ambient temperature where the motor is installed) is $> 65^{\circ}\text{C}$ or $< -40^{\circ}\text{C}$;
- With operating air temperature (inside the unit) $> 100^{\circ}\text{C}$ or $< -40^{\circ}\text{C}$;
- With high supply voltage ($>1000\text{V AC}/>1500\text{V DC}$).

Why?

In any of the conditions above are present the motors and fans will have to be of a special manufacture. This has influence in the motor and fan efficiency therefore rendering the requirements of the Regulation not relevant.

7. Ventilation units designed to operate in toxic, highly corrosive or flammable environments or in environments with abrasive substances.

There is a substantial amount of speculation about what is meant by “corrosive, abrasive, toxic or flammable environments”. Regulation 1253/2014 does not provide a definition of such environments.

Guidance provided on support documents elaborated by the European Commission and major ventilation industry associations in Europe provides some further depth into this question.

For “environments with abrasive substances” guidance can be considered to be in line with the **FAQ for Regulation (EU) No 327/2011**.

It is considered that an air stream is classed as abrasive if the “(...) *the transported particles are harder than the typical materials the fans are made of.*”. Detailed guidance can be found on the document above.

Some relevant examples refer to processes in the industry where it is widely recognised that the production of abrasive substances occur (causing accelerated wear on the fan / impeller blades):

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- Cement industry;
- Asphalt industry;
- Ceramic industry;
- Cereal milling sector (pneumatic transport in mills);
- Glass sector;
- Steel sector (air supply for burners and extraction of fumes);
- Brick products sector (air supply for burners' circulation' extraction of fumes);
- Woodworking sector (filtration' dust removal);

Regarding “*highly corrosive, aggressive or flammable environments*” these can be considered referring to those environments where the handling of toxic, highly corrosive or flammable gases or vapours takes place as set out in *Regulation (EC) No 1272/2008 (CLP Regulation)* and its adaptations.

The only available approach is to refer to processes within the industry that are regarded as being highly corrosive, flammable or where toxic environments exist. To constitute an exemption this has to be combined with the fact that special designs of fans and motors are used to withstand such environments and as such can limit their performance rendering the requirements of the Regulation not relevant.

It's worth mentioning that only ventilation units used exclusively within the production processes are excluded, and not any other units as for example a ventilation unit that also can be used for “normal” ventilation.

Why?

In industrial processes, fans are widely used to transport many kinds of different substances. These substances inevitably induce wear that can result in malfunction of the equipment. For security reasons and to ensure functionality as well as usability during usage these fans must be of a specific design (e.g. extended distance between blades or impeller and casing, special linings) which result in lower efficiencies of the fan and motor.

It is obvious that fans transporting substances in the air cannot have the same energy consumption as fans which just handle pure air. The energy efficiency of both types of fans cannot be compared.

It can be assumed that this exemption allows certain fans to apply all sorts of precautions like seals, special materials, etc. that have a negative effect on efficiency but are necessary to protect the workers, consumers and the environments.

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- 8. Ventilation units that include a heat exchanger and a heat pump for heat recovery or allowing heat transfer or extraction being additional to that of the heat recovery system, except heat transfer for frost protection or defrosting.**

The core of the regulation is to specify requirements for the ventilation function of a unit. If the ventilation and heat recovery function has no energy related connection with the additional components (except defrosting) the ventilation part is covered by the regulation.

For NRVUs a distinction is made between ventilation components and additional non-ventilation components. Additional non-ventilation components can be heating or cooling coils that are not part of the reference configuration (casing, 2 fans, 1 HRS and supply and extract filters). If this is combined with an heat pump for heat recovery (using supply and exhaust air from the ventilation unit for its operation), then the BVU does not fall under the scope of the Regulation.

However, if an heat pump simply uses exhaust or supply air from the ventilation unit by using a coil (additional non-ventilation component not affecting heat recovery) connected to an external condensing unit, the ventilation unit falls under the scope of the Regulation.

As an example, a unit which operates with an heat pump in which the heat pump is connected to the unit by means of a condenser/evaporator direct expansion coil on the supply air with the condenser being external to the unit still has to comply with the requirements of the regulation.

Why?

Assessing the heat recovery requirements of these products would be a challenge since, once in operation (winter operation example), the heat pump will act as a heat recovery device by itself removing heat from the extract air on the evaporator and supplying it to the supply air on the condenser. This means there is less heat available for heat recovery on the HRS making achieving the required efficiency very difficult.

Furthermore it was deemed that such products (packaged direct expansion ventilation units):

- Have a ventilation function which is very complex to regulate because of the additional functions (heating, cooling) which were not in the scope of the preparatory studies;
- Represent a very small market share;
- Are already high performance products.

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9. Products intended to be used in a building or part of a building not designed for human occupancy or a product that is not intended, as its primary function, to replace utilised air, unless the same product is also designed to only replace utilised air and thus, should comply with all relevant requirements of the eco-design Regulation (bearing in mind the exclusions of scope of the Regulation itself).

In a building or part of a building designed for human occupancy, the purpose of the ventilation unit is to replace utilised air by outdoor air. In this respect, the utilised air is the polluted air due to the presence of human beings and their use of the building including emissions from materials, equipment, internal and external heat gains.

Secondary or recirculation air is not considered ventilation.

In case the product has a connection to the outdoor with percentage of fresh air exceeding 10% of the total declared supply air flowrate, the unit is considered a ventilation unit and falls under the scope of this Regulation. This implies that it must comply with all relevant requirements at that supply/exhaust flowrate.

It is challenging to define the primary function of a unit especially when additional functions are present such as cooling, heating, humidification/de-humidification, etc...

If an industrial area in a building is also regularly occupied by persons, the ventilation function for human occupancy shall be considered case by case.

To aid in assessing whether the unit falls or not within the scope of this Regulation a decision tree was elaborated by EVIA/Eurovent, which can be consulted in the last page of this document.

Some specific applications, stated in these support documents, which are not in the scope of the regulation are:

- Data centres, server rooms;
- Exhaust from professional kitchen hoods or ceilings;
- Machine exhaust;
- Heat dissipation;
- Foundries, forging processes;
- Welding processes;
- Halls with industrial furnaces;
- Paper production;

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- 10. The Ecodesign Directive does not apply to ventilation units used on marine applications (ships) as it's stipulated that the Directive does not apply to means of transport for persons or goods.**

- 11. The Regulation is not applicable to repairs or upgrade of existing systems unless the existing system is completely replaced.**

Repair of a ventilation unit is always possible. This does not lead to a new assessment of conformity.

The repair might involve changes of components on the ventilation unit such as:

- Heat recovery units or sections;
- Motors and fans (please see EG 640/2009 and EU 327/2011 for minimum requirements of motor or fan change);
- Filters;
- Heat exchangers;
- Controls.

At the time of the repair such components should comply with any relevant specific regulations applicable to the component itself.

A change of the entire ventilation unit according EU 1253/2014 does always mean, that the entire new ventilation unit has to comply with EU 1253/2014.

12. Exemptions not considered on the Regulation

Additional exemptions might be applicable should specific operating conditions or designs be observed.

Barkell assesses each design individually and can provide a separate statement to justify its approach towards any of these specific scenarios both on the event that we decide to exempt the units or not.

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