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Position Paper

In a nutshell

With this Position Paper Eurovent would like to provide the Project Consortium in charge of the Ecodesign and Energy Labelling WP 2020-2024, with its additional input.

Specifically, Eurovent wants to provide the Project Consortium with its own assessment on the saving potential at the building level thanks to the use of efficient air curtains.

Background

Further to the first stakeholder webinar on 10 July 2020, Eurovent would like to thank the European Commission for the possibility of providing comments to the draft reports.

Specifically, Eurovent thanks the Project Consortium in charge of the Ecodesign and Energy Labelling WP 2020-2024 for considering its comments on the assessment of the saving potential at the EU building level thanks to the use of efficient air curtains.

Assessment of the saving potential at the building level

Current and expected install base

According to Eurovent Market Intelligence (EMI) data, the most recent sales figures are reproduced in the following:

Year Product types	Sales			
	2016	2017	2018	2019
Ambient only	15,291	18,863	20,357	21,876
Electrical heated units	37,555	46,925	46,731	42,997
Hydronic coil units	35,297	27,680	26,414	25,841
Direct expansion heat pump coil units	4,268	2,058	2,308	2,162
Total	92,411	95,526	95,810	92,876

Technologies: Average, BAT and BNAT

The primary purpose of an air curtain is to act as an air wall or air door to prevent heat transfer across an opening.

Technical parameters of the typical average air curtain for commercial use are:

- Width: 1.5 m;
- Height: 2m;
- Manual setting of the heater in stages at 0 %, 50 % or 100% and a thermostat to control the heat after the stage is set;
- 2 to 3 fan speeds selected manually;
- Crossflow fan wheels with AC motors or forward curved radial fans with AC/EC motors.

The BAT includes AC/EC motors and advanced control solutions, taking into account week times and cold/warm seasons. Door contacts may prevent the air curtain running when the doors are closed.

The BNAT may include even more efficient motors and more advanced controls, including dynamic algorithms handling the fluctuating pressure difference over the door opening caused by wind loads and integration of intelligent control via the BMS-system. The jet beam can also be optimised further.

Use pattern and energy consumption of air curtains

The tables¹ below report the use pattern as well as the current consumption of an average air curtain in different modes:

Product type	On mode Hours	Standby Hours	Off/idle mode Hours
Ambient only	4	4	16
Electrical heated units	2	6	16
Hydronic coil units	2	6	16
Direct expansion heat pump coil units	2	6	16

Product type	On mode Watt	Standby Watt	Off/idle mode Watt
Ambient only	212.5	125	0
Electrical heated units	4500	125	0
Hydronic coil units	212.5	125	0
Direct expansion heat pump coil units	212.5	125	0

Saving potential assessment

The saving potential is assessed by taking into account only the possible energy saving at the building entrance area due to the use of very efficient air curtains. This means that the saving potential addressed within this PP is assessed only at the entrance area of a building by comparing the Climate Separation Efficiency of an efficient air curtain with the one of an average air curtain.

EU Building Stock and related energy consumption at the entrance area

According to the EU Building Database², the number of existing non-residential buildings in EU28 in 2017 amounts at 46.296.000.

The energy consumption for heating the buildings' entrance area (as an average for the current building stock of EU non-residential buildings) can be estimated³ at 100 W/m²; furthermore, Eurovent estimates that, as an average, the entrance area of the current stock of non-residential buildings is of about 35 m².

¹ Preparatory study for the Ecodesign and Energy Labelling Working Plan 2020-2024 (Task 3)

² https://ec.europa.eu/energy/eu-buildings-database_en

³ <https://www.effizienzhaus-online.de/heizleistung-haus/>

By assuming that:

- the Climate Separation Efficiency (CSE) of an average air curtain is today of about 50%;
- the Climate Separation Efficiency (CSE) of an efficient (BNAT) air curtain can be estimated at about 55%;
- the operating days/year of an air curtain can be estimated at 260;
- the operating hours per day are 8;

It is possible to estimate the saving potential of a building equipped with an average air curtain:

Entrance area*heating consumption*operating days*operating hours*CSE=
 $35*100*260*8*50\%=3500*2080*50\%= 3.640 \text{ kWh/year}$

It is also possible to estimate the saving potential of a building equipped with an efficient air curtain (BNAT):

Entrance area*heating consumption*operating days*operating hours*CSE=
 $35*100*260*8*55\%=3500*2080*55\%= 4.004 \text{ kWh/year}$

The delta saving potential results to be: 364 kWh/year

By assuming that 1/3 of the current EU-28 building stock of non-residential buildings (= 15.432.000 buildings) could be equipped with efficient air curtains by 2030, the final saving potential at the building level can be calculated as: $364 * 15.432.000 = 5,61 \text{ TWh}$.

Conclusion

According to the above assessment, thanks to the use of efficient air curtains it is possible to estimate a saving potential at the building level of about 5,61 TWh by 2030.

Eurovent and transparency

When assessing position papers, are you aware whom you are dealing with?

Eurovent's structure rests upon democratic decision-making procedures between its members and their representatives. The more than 1.000 organisations within the Eurovent network count on us to represent their needs in a fair and transparent manner. Accordingly, we can answer policy makers' questions regarding our representativeness and decisions-making processes as follows:

<p>1. Who receives which number of votes?</p> <p>At Eurovent, the number of votes is never determined by organisation sizes, country sizes, or membership fee levels. SMEs and large multinationals receive the same number of votes within our technical working groups: 2 votes if belonging to a national Member Association, 1 vote if not. In our General Assembly and Eurovent Commission ('steering committee'), our national Member Associations receive two votes per country.</p>	<p>2. Who has the final decision-making power?</p> <p>The Eurovent Commission acts as the association's 'steering committee'. It defines the overall association roadmap, makes decisions on horizontal topics, and mediates in case manufacturers cannot agree within technical working groups. The Commission consists of national Member Associations, receiving two votes per country independent from its size or economic weight.</p>
<p>3. How European is the association?</p> <p>More than 90 per cent of manufacturers within Eurovent manufacture in and come from Europe. They employ around 150.000 people in Europe largely within the secondary sector. Our structure as an umbrella enables us to consolidate manufacturers' positions across the industry, ensuring a broad and credible representation.</p>	<p>4. How representative is the organisation?</p> <p>Eurovent represents more than 1.000 companies of all sizes spread widely across 20+ European countries, which are treated equally. As each country receives the same number of votes, there is no 'leading' country. Our national Member Associations ensure a wide-ranging national outreach also to remote locations.</p>

Check on us in the [European Union Transparency Register](#) under identification no. 89424237848-89.

We are Europe's Industry Association for Indoor Climate (HVAC), Process Cooling, and Food Cold Chain Technologies – thinking 'Beyond HVACR'

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 companies, 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.

Eurovent's roots date back to 1958. Over the years, the Brussels-based organisation has become a well-respected and known stakeholder that builds bridges between the manufacturers it represents, associations, legislators and standardisation bodies on a national, regional and international level. While Eurovent strongly supports energy efficient and sustainable technologies, it advocates a holistic approach that also integrates health, life and work quality as well as safety aspects. Eurovent holds in-depth relations with partner associations around the globe. It is a founding member of the ICARHMA network, supporter of REHVA, and contributor to various EU and UN initiatives.