Daikin position on the discussion document on the review of the Ecodesign ENER lot 11 on fans in the range of 125W-500kW

In view of the preparatory study for the revision of Commission Regulation (EU) No.327/2011 on fans, Daikin has reviewed the discussion document.

Daikin wants to underline that the current discussion document lacks necessary evidence to change the current requirements. The discussion document is from this perspective not robust enough to take any other conclusion. Also for the discussion points raised, there has been no additional investigation to substantiate the positions taken.

Daikin has evaluated the discussion document and supports positions for exclusion of non-complete assembly from the scope of fan regulation, and the proposal not to extend the scope of regulation to fans below 125W.

Also, we share herewith arguments and positions on the issues that concern us the most in addition to the positions formerly expressed during the study process.

1. Avoid double regulation for products covered by other Ecodesign measures.

The discussion document shows support for double regulation. It is clear that the arguments raised by the industry have not been considered thoroughly:
the former report did not show any analysis on impact on fans integrated in products, nor was there an assessment of any LLCC on any of the HVACR products. There is as such no data that shows the benefit to the environment or energy efficiency for these products and there are severe consequences for the affordability of products which have not been studied at all. So far, the current report did not give additional viable arguments to support the decision proposed.

Furthermore, the legal context has drastically changed for HVACR products compared to the moment of voting of the Regulation. Argumenting in the discussion report that the decision taken in the past should be maintained without considering the current legal framework is not sufficient. It should be possible to question decisions formerly taken.

In addition to these points, which have already been argued at length in former position papers, we would like to point out 2 additional issues to consider in view of this stance:

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1) Different tiers from different Ecodesign regulations

The fan measure, and component measures in general, create unstable conditions for product manufacturers who already have to comply with their own Ecodesign measures (please find below a table of different tiers). Investments made to redesign should be recoverable, but component measures endanger this recoverability.

			2012	2013	2014	2015	2016	2017	2018	2019	2020
Components	fans	ENER lot 11		Tier 1		Tier 2 Revision	Publication		Tier 1		Tier 2
	Motors	ENER lot 11				Tier 2		Tier 3			
	Circulators	ENER lot 11		Tier 1		Tier 2					
	Motors	ENER lot 30					Publication	Tier 1	Tier 2		Tier 3
Products with fans	Airco > 12 kW	ENER lot 10	Publication	Tier 1	Tier 2			Revision			
	Boilers and water heaters	ENER lot 1 and ENER lot 2		Publication		Tier 1		Tier 2	Revision		
	Ventilation products	ENER lot 10/ENTR lot 6			Publication		Tier 1		Tier 2	Revision	
	Process cooling	ENTR lot 1				Publication	Tier 1		Tier 2		Revision
	Air heating, cooling and process chillers	ENER lot 21				Publication		Tier 1		Tier 2	Revision

2) Difficulty of market surveillance

Market surveillance on fans integrated in HVAC products is not always possible without specific fan testing know-how and tools tailored to HVAC products. Unless market surveillance is ensured, it would create competitive disadvantage to Ecodesign compliant HVAC manufactures against free riders. Details are explained in annex I.

3) Meaningful regulation of fans integrated in products that are already covered by other Ecodesign measures will not lead to reduced energy consumption

The energy consumption of a product is determined by the energy efficiency of the product. In this way, only the regulation of the energy efficiency of the product can influence the energy consumption of the product. Regulation of the energy efficiency of a component of the product, for example, of an integrated fan, can reduce the energy efficiency of that component. However, it does not assure that the energy efficiency of the product will improve. It makes common sense that requirements at system level are regulated at system level. In this way, regulation at component level should not have any influence on the energy requirements at system level, in case the requirements at system level are already

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covered by other Ecodesign measures. Thus, meaningful regulation at component level will not influence the energy consumption of the total product.

4) Setting strict energy efficiency requirements for fans integrated in products already covered by Ecodesign measures will limit innovation.

The energy efficiency of a product is determined by the combination of the energy efficiency of its components. Through innovation, the energy efficiency of a product is obtained in a cost efficient way. In case it would be cost efficient to use fans with the highest possible efficiency available on the market, this would be done. Setting strict requirements at component level limits the innovation that leads to the most cost efficient product with the highest possible product efficiency.

2. The level of minimum energy efficiency requirements

As it is unclear whether the point of double regulation will be considered, we have evaluated the proposals in the discussion document.

<Axial fans>

The requirements as proposed in the discussion document are too high and should be reconsidered.

To our understanding there is no differentiation between propeller fans, tube axial fans, and vane-axial fans. Although tube axial fans and vane-axial fans are more efficient than propeller fans, our products use propeller fans because propeller fans allow us a compact design of our products. Therefore, propeller fans are essential for our products, and simple replacement of these fans with other types of axial fans is not possible.

Regarding the tiers, only 1 tier should be proposed and also there should be thorough consideration on the timing of the tier not to interfere with the specific product lots.

<Centrifugal forward curved fans>

Merging centrifugal forward curved fans with centrifugal backward curved fans in combination with the proposed requirements is resulting in a ban of centrifugal forward curved fans.

Separate classification shall be maintained. Simple replacement of centrifugal forward curved fans is not possible without substantial impact on design, which would limit European customer's choice and affordability.

In addition a more realistic level of efficiency level should be proposed for centrifugal forward curved fans.

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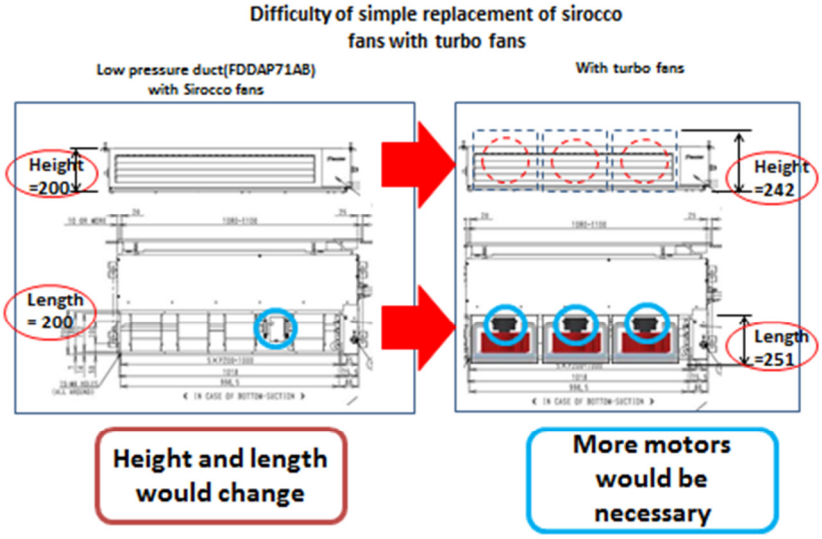
Regarding the tiers, only 1 tier should be proposed and also there should be thorough consideration on the timing of the tier not to interfere with the specific product lots.

Centrifugal forward curved fans are essential components for our indoor units typically designed to be integrated in false ceilings, concealed indoor units. These so called sirocco fans are used as these can bring more amount of air flow than the same sized turbo fans. As a consequence, to replace these fans with turbo fans to maintain the same amount of air flow without substantial impact on design is not possible. In all cases the product needs complete redesign, with the necessary consequences in the market. Furthermore this will affect availability of the products and also does not consider the cost impact of such a re-design. Please find below some possible design changes and adverse consequences to replace 4 sirocco fans (Height: 200mm; Length: 200mm) in an indoor unit with turbo fans:

1) Option 1: integrating bigger turbo fans: If we want to replace 4 sirocco fans with turbo fans, one possible option is to use turbo fans bigger than sirocco fans (H: 242; L:251). However, integrating bigger fans, the size of indoor unit becomes larger, and we would not anymore be able to produce identical products. In addition, we would have to increase the number of fan motors installed. Currently, 4 sirocco fans can be connected to each other, to be operated by 1 fan motor. This is possible because sirocco fans operate with two way air intake, which allows the connection to the rotating fan shaft. However, turbo fans employ 1 way air intake, which cannot be operated in this manner. Although the turbo fans with 2 air intakes exist in the market, these are limited in number and efficiency level. As a consequence, we would have to install more fan motors, which would substantially increase the cost of products.



Air flow
1) Sirocco fans: 2 way air intakes

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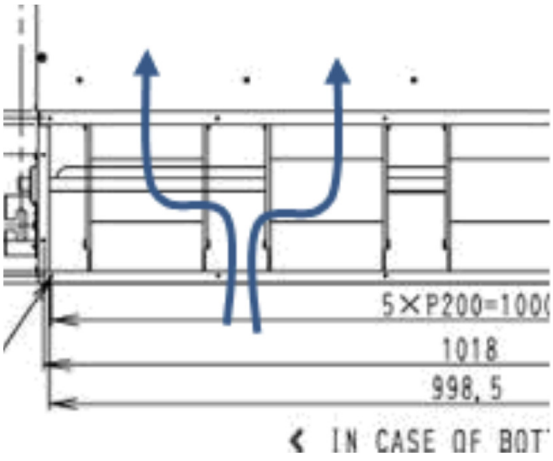
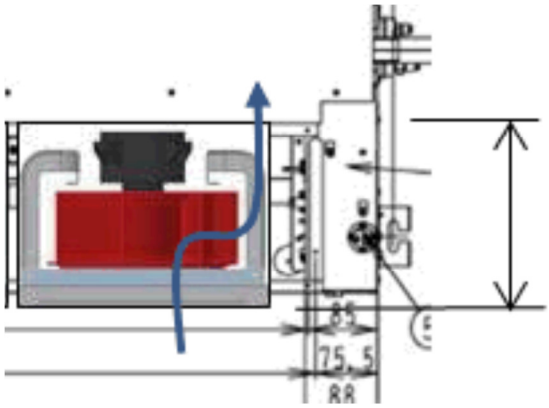
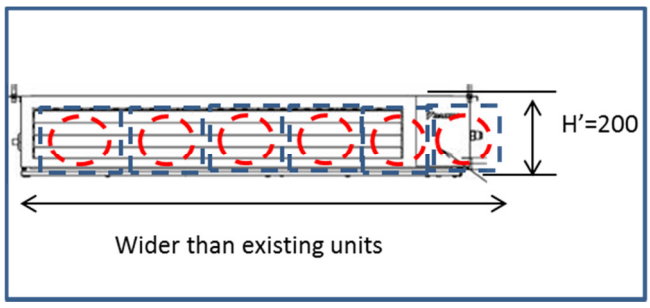


2) Turbo fans: 1 way air intake



2) Option 2: integrating smaller (or same sized) turbo fans: Another possible option is to use turbo fans with a smaller size (or same size) than the existing 4 sirocco fans. In this case, however, we would have to integrate at least 6 turbo fans, and as a result, the product integrating these fans would get much wider. This would make that we would not anymore be able to produce identical products. In addition, we would have to integrate more fan motors than currently integrated in existing units (please see 1) above for more explanation).



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3. The definition of best efficiency point

We support the VHK's proposal on clarification of best efficiency point as a relative value to be set at any operating point on the qv - Δp curve because the current fan regulation has been based on this method. Any change without a sufficient analysis on possible consequences would potentially create huge burden on Industry. As such, the current interpretation shall be maintained.

4. Spare parts should be fully excluded from the scope

While we appreciate the approach to establish a grace period on compliance of spare parts, Daikin is in the view that 5 years grace period is not enough to ensure the functioning of our products during their life time, and that spare parts should be fully excluded. If the interpretation holds that spare parts are not considered to be placed on the market, then it is also reasonable to specify that these are excluded. Apart from the positions formerly given, 5 years is not enough to ensure correct estimation of the necessary stock of spare parts.

In order to be able to predict the correct amount of spare parts to procure for HVACR products, there is a clear need to evaluate the breakdown rate of the components. Typically, the breakdown rate of electronic components, for example, PCB's, is lower than for mechanical components such as for example fans. In addition, the breakdown rate is different per model, depending on the settings of the model and the conditions the component has to work in. As such, to provide the best prediction, it is needed to have the freedom to do so. Limiting to 5 years does not support it. On the contrary, it forces manufacturers to prematurely predict amounts and de-facto will create a shortage or abundance of these spare parts with necessary consequences towards waste (if too much is predicted) or customer satisfaction (if too little is predicted).

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Annex I: difficulty of market surveillance on fans integrated in HVACR products

<Summary>

Market surveillance on fans integrated in HVAC product is not always feasible. When the practical enforceability of the legislation is not ensured, the door for free riders is opened and the investment made by manufacturers to comply with the ecodesign requirements is not guaranteed. Therefore, we would like to ask the Commission to exclude fans integrated in HVAC products from the fan measure, which are already covered by other ecodesign regulations.

<General principle>

A fan is composed of at least 3 parts: an impellor, a motor, and a housing/nozzle. These parts determine air flow rate and pressure, and fan efficiency is based on air flow and power input.

<Market surveillance is difficult for fans in HVAC products>

To test the fans integrated in HVAC products for market surveillance, there are 2 options.

Option 1: Extract the fan (motor, impeller and housing/nozzles) from the product and test.

In most cases, for HVAC equipment this is practically impossible because the housing/nozzle of the fans is an integral part of the end product.

Only in some limited cases when the fan has a separate housing that is not part of the casing of the unit, the housing/nozzles can be extracted with the rest of the fan.

Option 2: Test the efficiency of the fans inside the unit

For HVAC equipment, this requires the extraction of the other components from the equipment as some might affect the external static pressure. With DC fans, the fans are controlled by a PCB; nevertheless, in an HVAC product, the PCB also controls the other components of the unit, such as the compressor. By taking out these other components, the PCB might give an error, and to solve this error, specifically dedicated fan testing know-how and tools are necessary.

<Conclusion>

Market surveillance on the fans integrated in HVAC products is not always possible without specific fan testing know-how and tools tailored to HVAC products. Unless market surveillance is ensured, it would create competitive disadvantage to ecodesign compliant HVAC manufactures against free riders. Therefore, the fans integrated in HVAC products should be excluded from the scope of fan measures under ENER Lot 11.

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