Swedish Energy Agency

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By email

Swedish comments on the Commission Regulation of Implementing Directive 2005/32/EC with regard to ecodesign requirements for fans within a 125 W-500 kW power range

Summary and proposals

Sweden welcomes the proposal for ecodesign requirements of fans but regrets the delay taking into account that the first consultation forum was held in may 2008.

Sweden welcomes that fans integrated into other products are covered by the proposal. However, in general Sweden believes that the requirements are far too weak compared to the cost effective energy efficiency levels. Moreover, too weak requirements may lead to imports of low-cost inefficient products, and the competitiveness of European-based manufacturers of efficient quality products may be harmed.

Sweden proposes that:

- **by 2012, the requirements should be those proposed for 2015;**
- **by 2015, the requirements should be close to the benchmark levels presented in Annexe IV;**
- **the motors intended to operate (i) above 40°C or (ii) below -15°C, should not be excluded**
- **fans integrated in box-fans and roof-fans should also be required to fulfil the ecodesign requirements for the respective fan type;**
- **for box-fans and roof-fans, the minimum efficiency requirement should be made independent of the type of fan integrated, and that the level of the requirement should be the one for backward curved fans.**
- **for fans above 500 W, the minimum requirements for forward and backward curved fans should be the same, and be set at the level of the requirements for backward curved fans (the more stringent level).**

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1. Scope and definitions

Sweden thinks it is crucial that the proposal includes fans integrated into other products, and thus supports the current proposal in this respect.

In the proposed scope there are exclusions for fans with motors operating at ambient temperatures above 40°C and below -15°C. The exclusion is presumed to be a result of definitions of standard motors in the regulation for motors. However, motors for those temperatures are already “standard“ motors for those applications, and fans equipped with such motors should thus not be excluded.

The two definitions of enclosures, box fan and roof fan, will create a possibility to market fans either (i) as a fan or (ii) as an enclosed fan, due to the proposed difference in requirements. A manufacturer thus has the possibility to pick the most advantageous definition. To eliminate this loophole, the fan inside the enclosure must fulfil the required minimum target for that type of fan. Furthermore, the limits for forward curved fans are set too low and should be the same as for backward curved fans.

Sweden proposes that:

- the fans with motors operating at ambient temperatures (i) above 40°C or (ii) below -15°C, are not excluded. I.e., the exclusions under Article 1.2.c.i.b and Article 1.2.c.ii should be removed;
- fans integrated in box-fans and roof-fans also must fulfil the ecodesign requirements for the respective fan type;
- for box-fans and roof-fans, the minimum efficiency requirement are made independent of the type of fan integrated, and that the level of the requirement should be the one for backward curved fans.

2. Eco-design requirements and time frame

The ecodesign requirements proposed are generally perceived as too weak. The 2015 requirements should be valid in 2012. The level for 2015 should be close to the benchmark levels presented in Annexe IV. This view is clearly supported by the Swedish fan industry.

The aim of the Regulation should be to set requirements based on the functionality of the product and not on the technical solution. The Commissions’ proposal, by setting different requirements to products with the same function seems to aim at keeping all existing technical solutions for a given application. This is the case of forward and backward curved fans, which have different requirements although providing the same function. As the efficiency grades are given for forward curved fans are favoured over backward curved fans. It is not a desirable outcome of this regulation that the least efficient solution for the same application is favoured.

The product information requirements are very substantial for a bare shaft fan without housing. A suggestion is that the manufacturer supply technical

documentation and the integrated product supplier fits a marking plate for the fan assembly.

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- by 2015, the requirements should be close to the benchmark levels presented in Annexe IV;
- for fans above 500 W, the minimum requirements for forward and backward curved fans should be the same, and set at the level of the requirements for backward curved fans.

3. Calculation method

In calculation compressibility factors $k_{ps\ and}$ k_p are used in Annex II 3.3 in all formulas without any explanation or formula to determine the value. In standards the compressibility factors Annex II 1 (6) k_{ps} and (7) k_p are defined. There is also the Mach factor used. The text should either give reference to standards or fully incorporate all explanations.

The Mach factor Annex I 1 (11) should be excluded as it seems not to be used.

The word optimum used in many sentences is not distinct and may lead to differing interpretations. Using “Maximum” or “minimum”, depending of the intention, is more accurate. For example Annex I.1 (14) “[…] *optimum efficiency* point […]”, it would be preferable to us “*maximum efficiency*”.

We agree that fans measured and delivered with a variable speed drive should be compensated as proposed with the “part load compensation factor (Cc). Conversely, we do not think that there should be a “part load compensation factor” for bare shaft fans (“not final assembly”).

4. Verification procedures

The verification procedure described in Annex III corresponds to a 10 % tolerance for the energy efficiency target. This tolerance is understood as covering the difference between promised product data as well as the possible scattering between individuals in production. Considering that manufacturers know this scattering, we are of the opinion that manufacturers should take the level of the scattering into consideration so that the minimum efficiency figure is declared.

Thus the limit of the tolerance for market surveillance should be equal to the measurement uncertainty in the accepted standards. In the standard mostly used for measuring fan capacity, EN ISO 5801:2008, the measurement uncertainty is limited to an interval of confidence of 95%. Also
The standard(s) to be used for verification and thus also for the measurement procedures should be given as soon as possible.

Sweden proposes that the Tolerance level for the energy efficiency target is reduced from 10% to 5 %

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