

## Joint Industry Position Paper of European AMCA, Eurovent and EVIA

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### Joint industry Position Paper, Draft Regulation – Revision of 327/2011

**With this Position Paper, European AMCA, Eurovent and EVIA jointly position themselves concerning the Draft 'EU Fan Regulation' to be discussed at the Consultation Forum on 30 April 2015.** The three associations have been actively involved in the review process since its very beginning. It reflects the positions of a vast majority of the European fan industry, incorporating views of fan producers and suppliers. The paper summarises joint positions, opinions can differ on points uncovered by this paper.

#### Key positions

We appreciate the work done and hold that the proposed draft constitutes a much improved document from the current Regulation 327/2011, addressing many issues. In particular, we value the following points and strongly reinforce our support for:

- ✓ **Clearer definition of a fan:** Sound and clear definition of a 'fan' as a configuration of impeller, stator and drive system.
- ✓ **Removal of 'not final assemblies' / impellers removed from scope:** Only complete assemblies (impeller, motor, stator) give meaningful and comparable test results.
- ✓ **2020 implementation of the revised Regulation**

We see further improvement potential concerning the following points:

- **Axial fan minimum efficiencies / slopes:** The industry has concerns regarding the proposed limits which are considered too high considering foreseeable technological advances.
- **Stator and additional part definition:** We see a need for a clear distinction between the essential parts of the stator and 'non-fan components' (additional parts).
- **Jet fans:** The efficiency limit required for jet fans below 5kW is technically not achievable and removes the acknowledged car park ventilation solution from the EU market.
- **Replacement parts / proposed grace period of 5 years:** We ask for a confirmation of our interpretation.
- **Exemption of fans for kitchen hoods:** We see no technical or economic argument why fans used in kitchen hoods should not comply with the 'EU Fan Regulation'.

In the attached document, European AMCA, EVIA and Eurovent suggest corrections to editorial issues and request amendments to key points. These changes are necessary to ensure the objective of reduced energy consumption is achieved without adverse impact on the industry. We look forward to the opportunity for discussion of these points at the Consultation Forum.

With kind regards,

**Neil Jones**  
Director of European Regulatory  
Affairs, European AMCA

**Felix Van Eyken**  
Secretary General,  
Eurovent

**Geoff Lockwood**  
Chairman of the Fan Working  
Group, EVIA

### European AMCA

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The Air Movement and Control Association (AMCA) International, is a not-for-profit association of the world's manufacturers of fans, louvers, dampers, air curtains, air flow measurement devices, ducts, acoustic attenuators and other air system components. Our association was founded in the United States, but we have expanded to be truly international. AMCA is now represented in several regions, with 330 member companies in 34 countries. The Air Movement and Control Association International (AMCA International) recognises that its members in different regions have different needs, and that those needs can be better met from local operations directed by a separate board of directors made up of local members. Accordingly, AMCA International founded European AMCA in Brussels.

### Eurovent

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Eurovent, the European Committee of HVAC&R Manufacturers, is the representative of Europe's major national associations in the industry of heating, ventilation, air conditioning and refrigeration. Based on objective and verifiable data, its 30 members from 20 European states represent more than 1000 companies, the majority small and medium-sized. In 2014, these accounted for a combined annual turnover of around 25bn euros and employed more than 120.000 people – making Eurovent one of the largest industry committees of its kind.

### EVIA

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The European Ventilation Industry Association (EVIA) was established in July 2010 in order to represent the ventilation and fan industry both in Brussels with the EU institutions and relevant stakeholders and in the national capitals with our partners. Our membership is composed of 36 member companies and 5 national associations across Europe realising an annual turnover of over 7 Billion Euros and employing more than 45,000 people in Europe.

| Draft Regulation   | Associations' positions                                | Agreement               | Proposed change/ joint position  |
|--|--|-------------------------|--|
| <b>Draft Regulation</b>  | <b>Associations' positions</b>                         | <b>Agreement YES/NO</b> | <b>Proposed change</b>   |
| <b>Recitals</b>  |  |                         |  |
| (1) Under Directive 2009/125/EC ecodesign requirements should be set by the Commission for energy-related products representing significant volumes of sales and trade, having a significant environmental impact and presenting significant potential for improvement through design in terms of their environmental impact without entailing excessive costs.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok          | YES                     | No changes   |
| (2) Article 16(2)(a) of Directive 2009/125/EC provides, that in accordance with the procedure referred to in Article 19(3) and the criteria set out in Article 15(2), and after consulting the Ecodesign Consultation Forum, the Commission should, as appropriate, introduce implementing measures for products offering a high potential for cost-effective reduction of greenhouse gas emissions, such as for fans. | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok            | YES                     | No changes   |
| (3) Clarity and transparency regarding the applicable requirements for different fans needs to be ensured. Regulation 327/2011 is repealed from the date of coming into application of the minimum requirements set out in this Regulation.  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint | YES                     | The industry is unclear when certain aspects of the current regulation are repealed and aspects of the new regulation come into force, e.g. spare parts, nuclear installations, military. Please also see article 1.3.o.<br>Joint group requests clarification |

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| <p>(4) Fans driven by motors are an important part of various gas handling products. Minimum energy efficiency requirements have been established for electric motors in Commission Regulation [number and footnote to be added after publication in OJEU][1]. They also apply to those motors which are part of a motor-fan system. However, many fans covered by this Regulation are used in combination with motors not covered by Regulation [number to be added after publication in OJEU]</p> | <p>EVIA : ok<br/>Eurovent : ok<br/>AMCAEurope :ok</p>                        | <p>YES</p> | <p>No changes</p>   |
| <p>(5) Many fans are integrated in other products without being separately placed on the market or put into service in the meaning of Article 3 of Directive 2009/125/EC. To achieve the full cost-efficient energy saving potential, fans integrated in other products <b>where the efficiency can be tested separately</b> should be subject to the provisions of this Regulation.</p>  | <p>EVIA: joint<br/><b>Eurovent : Do not agree</b><br/>AMCAEurope : joint</p> | <p>No</p>  | <p>The fan industry proposes to delete “where the efficiency can be tested separately” as this adds a loophole as manufacturers can claim their fans cannot be tested separately.</p> |
| <p>(6) The Commission has carried out a preparatory study covering the technical, environmental and economic aspects of fans and variable speed drives typically used in the Union. The study was devised together with stakeholders and interested parties from the Union and third countries, and the results have been made publicly available.</p>  | <p>EVIA : ok<br/>Eurovent :ok<br/>AMCAEurope ok</p>                          | <p>YES</p> | <p>No changes</p>   |

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| (7) Fans used 262 TWh of electricity for the production of mechanical energy in 2010; this corresponds to corresponding to 108 Mt of CO <sub>2</sub> emissions. Without the requirements set out in Regulation 327/2011 this value was expected to increase to 336 TWh in 2020 and 384 TWh in 2030 corresponding to 128 Mt of CO <sub>2</sub> in 2020 and 130 Mt of CO <sub>2</sub> in 2030. | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok | YES       | No changes                      |
| (8) The measures set out in Regulation 327/2011, once the possible overlap on savings accounting with other measures has been taken into account will result in savings of 28 TWh in 2020 and 52 TWh in 2030, corresponding to 12 Mt of CO <sub>2</sub> in 2020 and 18 Mt of CO <sub>2</sub> in 2030.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok | YES       | No changes                      |
| (9) The preparatory study shows that fans are placed on the Community market in large quantities, with their use-phase energy consumption being the most significant environmental aspect of all life cycle phases.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok | YES       | No changes                      |
| (10) It has been concluded that the life-cycle energy consumption and the use-phase electricity consumption of fans can be improved significantly.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok | YES       | No changes                      |
| (11) The environmental aspect of fans that has been identified as significant for the purposes of this Regulation is energy consumption.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok | YES       | No changes                      |
| (12) The preparatory study shows that requirements regarding the other ecodesign parameters referred to in Annex I, Part 1 to Directive 2009/125/EC are not necessary in the case of fans.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok | YES       | No changes                      |

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| (13) Improvements in the electricity consumption of fans speed drives should be achieved by applying existing non-proprietary cost-effective technologies that can reduce the total combined costs of purchasing and operating them.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes                      |
| (14) Ecodesign requirements should harmonise power consumption requirements for fans throughout the Community, thus contributing to the functioning of the internal market and to the improvement of the environmental performance of these products.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes                      |
| (15) An appropriate timeframe should be provided for manufacturers to redesign products. The timing should be such that negative impacts on the functionalities of fans, and cost impacts for manufacturers, in particular small and medium-sized enterprises, are taken into account, while ensuring timely achievement of the objectives of this Regulation.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok | YES       | No changes                      |
| (16) Measurements of the relevant product parameters should be performed through reliable, accurate and reproducible measurement methods, which take into account the recognised state of the art measurement methods including, where available, harmonised standards adopted by the European standardisation organisations, as listed in Annex I to Regulation (EU) 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation[2]. | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok | YES       | No changes                      |

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| (17) Regulation 327/2011 was estimated to save 34 TWh per year by 2020. As the provisions set out in such Regulation are maintained, such savings are also maintained.   | EVIA : ok<br>Eurovent :ok<br>AMCAEurope ok    | YES       | No changes                      |
| (18) This Regulation should increase the market penetration of technologies that improve the life-cycle environmental impact of fans, leading to an estimated life-cycle electricity savings of 10 TWh by 2030, compared to the situation where no additional measures are taken.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes                      |
| (19) In accordance with Article 8(2) of Directive 2009/125/EC, this Regulation specifies which conformity assessment procedures apply.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes                      |
| (20) In order to facilitate compliance checks, manufacturers should provide the information in the technical documentation referred to in Annexes IV and V to Directive 2009/125/EC insofar that information relates to the requirements laid down in this Regulation.   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok | YES       | No changes                      |
| (21) In order to further limit the environmental impact of motors manufacturers should provide relevant information on disassembly, recycling or disposal at end-of-life.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok  | YES       | No changes                      |
| (22) Benchmarks for currently available technologies with high energy efficiency should be identified. This will help to ensure the wide availability and easy accessibility of information, in particular for small and medium-sized enterprises and very small firms, which will further facilitate the integration of best design technologies for reducing energy consumption. | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes                      |

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| (23) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 19(1) of Directive 2009/125/EC.                                      | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes  |
| <b>Article 1 - Subject matter and scope</b>   |   |           |   |
| 1. This Regulation establishes ecodesign requirements for the placing on the market or putting into service of fans with an end-use as component or as sub-assembly integrated in other products. | EVIA : see joint position<br>Eurovent : see joint position<br>AMCAEurope : see joint position | YES       | The industry believes it could be interpreted as if stand alone fans are excluded. We do not believe this is the intention.<br><br>Proposed change :<br>"putting into service of <b>all fans, including those</b> with an end-use as component or as sub-assembly integrated in other products" |
| 2. This Regulation shall not apply to:  |   |           |   |
| a) fan-impellers mounted on the shaft of electric motors of <b>3 kW or less</b> with the sole purpose of cooling the motor itself;  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint  | YES       | Deleted the words "of 3 kW or less"   |
| b) fans integrated in laundry and washer dryers ≤ 3 kW maximum electrical input power;  | EVIA : ok<br>Eurovent :ok<br>AMCAEurope :ok   | YES       | No comment  |
| c) fans integrated in kitchen hoods < 280 W total maximum electrical input power attributable to the fan(s);  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint  | YES       | Industry believes that the exemption is unjustified, as there's no technical difference between fans intended for kitchen hoods and similar fans intended for other applications  |
| d) fans with a best energy efficiency point (bep) at 8000 rotations per minute or more;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope :ok  | YES       | No changes  |
| 3. This Regulation shall not apply to fans which are specified to operate exclusively:  |   |           |   |



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| a) in potentially explosive atmospheres as defined in Directive 94/9/EC[3] of the European Parliament and of the Council;  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok                     | YES       | No changes  |
| b) for emergency use only, at short-time duty of 1 hour or more, with regard to fire safety requirements for temperatures of 300°C and above <b>set out in</b> Regulation (EU) No 305/2011 of the Council and the Parliament[4]; | EVIA : see joint<br>Eurovent : see joint<br>AMCAEurope :see joint | YES       | The industry proposes to change the words “set out in” <b>to comply with</b> ”  |
| c) in <b>nuclear installations nuclear installations</b> , as defined in Article 3 of Directive 2009/71/EURATOM[5], military or civil defence establishments and <b>wind turbines</b> ;  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope joint              | YES       | Ok with proposed text but we do not understand why do wind turbines have an exclusion where others have not<br>+ editorial comment : “nuclear installations” is mentioned twice |
| d) where operating temperatures of the gas being moved is higher than 100 °C or lower than – 40 °C;  | EVIA : ok<br>Eurovent :ok<br>AMCAEurope ok                        | YES       | No changes  |
| e) where operating ambient temperature for the motor, if located outside the gas stream, driving the fan is higher than 65 °C or lower than – 30 °C;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok                       | YES       | No changes  |
| f) with a supply voltage > 1 000 V AC or > 1 500 V DC;   | EVIA : ok<br>Eurovent :ok<br>AMCAEurope ok                        | YES       | No changes  |

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| g) handling toxic, highly corrosive or flammable gases or vapours as set out in Regulation (EC) No 1272/2008[6] and its adaptations;                | EVIA : ok<br>Eurovent :ok<br>AMCAEurope ok                                     | YES       | No comment   |
| h) handling abrasive substances with a hardness of at least 5 Mohs with a concentration of at least 100 mg/m <sup>3</sup> ;                         | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok                                    | YES       | No changes   |
| i) handling gases containing bio-hazardous substances of risk groups 2, 3 and 4 as set out in Directive (EC) 2000/54/EC[7];                         | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok                                    | YES       | No comment   |
| j) handling gases containing carcinogens or mutagens as set out in Directive 2004/37/EC[8];   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok                                    | YES       | No comment   |
| k) handling gases with a solid particle concentration of more than 200 mg/m <sup>3</sup> and/or particles with an <b>average diameter of 1 mm</b> ; | EVIA : joint comment<br>Eurovent : joint comment<br>AMCAEurope : joint comment | YES       | the industry is pleased to see this but it highlights the difficulty of defining industrial fans in the scope of the regulation. For example in this instance is the size of the particles too large? Also it does not address stickiness or moisture. Design for these applications have an adverse consequence on efficiency.<br>Note : this is where a radial fan would be required.<br>No suggested change. This is more of a discussion point to point out the difficulties of the SME business.<br>Editorial change " <b>average diameter of 1 mm or</b> |

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|--|---|-----------|---|
|  |   |           | more"   |
| l) handling gases with a compressibility factor, rounded to the nearest 2 decimal places, in the designated pressure and temperature range of the scope that is not equal to 1,00;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes  |
| m) in cordless or battery operated equipment;  | EVIA : ok<br>Eurovent :ok<br>AMCAEurope ok  | YES       | No changes  |
| n) in hand-held equipment whose weight is supported by hand during operation;  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok   | YES       | No changes  |
| o) as a replacement for identical fans that are no longer compliant with the minimum requirements in this regulation, for a period of 5 years after the implementation date of the tier whose requirements could not be met by the identical fan to be replaced;           | EVIA: agree to ask for confirmation<br>Eurovent : agree to ask for confirmation<br>AMCAEurope : agree to ask for confirmation | YES       | We understand that this means that fans placed on the market on June 2019 can be replaced with an identical fan up until the 31 December 2024. Also a fan placed on the market in June 2012 can be replaced with identical fan up until 31 December 2017. Please confirm. |
| whereby the packaging, the product information, nameplate and the technical documentation must clearly indicate regarding (a) to (n) that the fan shall only be used for the purpose for which it is specified and regarding (o) the product(s) it is intended to replace. | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok  | YES       | No changes  |
| <b>Article 2 - Definitions</b>   |   |           |   |
| 1. 'Fan' means a configuration of impeller, stator and drive system, intended for the continuous displacement of gas with at its bep an electric input power $\geq 125$ W and $\leq 500$ kW, a pressure-increase ratio lower than 1.1 and an                               | EVIA : ok<br>Eurovent :ok<br>AMCAEurope: ok   | YES       | No changes  |

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|---|--|-----------|---|
| output air velocity lower than 65 m/s, and which is an axial fan, centrifugal fan, cross flow fan, mixed flow fan or jet fan;   |  |           |   |
| 2. 'bep' is the best energy efficiency point for fan operation, as declared by the manufacturer and specified by the applicable fan speed, expressed in rounds per minute (rpm);  | EVIA: OK<br>Eurovent : OK<br>AMCAEurope : OK           | Yes       | Only editorial : RPM should be "revolution per minute" and not "rounds per minute".   |
| 3. 'Impeller' means the part of the fan that is imparting energy into the gas flow and is also known as the fan wheel;  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint | YES       | add the word "rotating", therefore the text is "Impeller' means the rotating part of the fan that is imparting"   |
| 4. 'Stator' is the stationary part of the fan which interacts with the air stream passing through the impeller and, within the geometrical air-stream envelope between defined fan inlet- and outlet sections, includes any part that may increase, and excludes any non-fan component that may decrease, the fan efficiency, following manufacturer's instruction; | EVIA : OK<br>Eurovent : OK<br>AMCAEurope: OK           | yes       | <p>The industry proposes to add clarity by defining representative examples of non-fan components in the draft fan efficiency standard (CEN TC156 WG17); Fans – procedures and methods to determine the energy efficiency for electrical input power range 125 W up to 500 kW. Work item 00156222. For example;</p> <ul style="list-style-type: none"> <li>• shaft seals</li> <li>• external cooling of the motors</li> <li>• additional cables e.g. sensors</li> <li>• split casings, access doors</li> </ul> <p>The industry requests confirmation that the Commission and Member States agree to this approach</p> <p>It is noted that stator does no need to be delivered to the end user with the impeller and motor. It can be a separate deliverable item. Please confirm.</p> |

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|   |  |           |  |
| 5. 'Drive system' means electric motor, transmission or direct drive and possibly a variable speed drive;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok                            | YES       | No changes   |
| 6. 'Transmission' means a driving arrangement for a fan which is not 'direct drive' as defined above. Such driving arrangements may include transmissions using a belt-drive, gearbox or slipping coupling;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok                          | YES       | No changes   |
| 7. 'Direct drive' means a driving arrangement for a fan where the impeller is fixed to the motor shaft, either directly or with a co-axial coupling, and where the impeller speed is identical to the motor's rotational speed;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok                          | YES       | No changes   |
| 8. 'Variable speed drive' (VSD) means an electronic power converter, integrated or functioning as one system or as a separate delivery with the motor and the fan, which continuously adapts the electrical power supplied to the motor in order to control its mechanical power output according to the torque-speed characteristic of the load it is driving, including EC (electronically commutated) motors with an internal control, excluding variable voltage controllers where only the supply voltage for the motor is varied; | EVIA : agree joint<br>Eurovent : agree joint<br>AMCAEurope agree joint | YES       | "with an internal control" should be deleted as it is misleading. The word "variable" in the last sentence should also be deleted. |
| 9. The 'specific pressure ratio' means the stagnation pressure measured at the fan outlet divided by the stagnation pressure at the fan inlet   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok                            | YES       | No changes   |

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| at nominal flow rate;  |  |           |   |
| 10. 'Fan flow angle' is the angle between incoming and outgoing gas flow direction of the fan-impeller measured in accordance with Annex V, point 1;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok        | YES       | No changes  |
| 11. 'Axial fan' means a fan with a fan flow angle $\leq 20^\circ$ , 'centrifugal fan' means a fan with a flow angle $\geq 70^\circ$ and 'mixed flow fan' means a fan with a flow angle $> 20^\circ$ and $< 70^\circ$ ;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok        | YES       | No changes  |
| 12. 'Centrifugal blade angle' means the inclination of a centrifugal fan blade towards or away from its rotation direction measured in accordance with Annex V, point 2;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok        | YES       | No changes  |
| 13. 'forward-curved' means a centrifugal fan with a fan blade angle $\geq 1^\circ$ , 'backward-curved' means a centrifugal fan with a fan blade angle $\leq -1^\circ$ and 'radial' means a centrifugal fan with a fan blade angle $< 1^\circ$ and $> -1^\circ$ ; | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok       | YES       | Not ideal but ok  |
| 14. 'Cross flow fan' means a fan in which the gas path through the impeller is in a direction essentially at right angles to its axis both entering and leaving the impeller at its periphery;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok      | YES       | No changes  |
| 15. 'Jet fan' means a fan used for producing a jet of air in a space and unconnected to any ducting;   | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok       | YES       | No changes  |
| 16. 'Low noise fan' means a fan with an electric power input of 10 kW or more with a maximum characteristic noise emission value C $\leq 32$ dB(A), as set out in Annex V, point 4;  | EVIA: joint<br>Eurovent :joint<br>AMCAEurope joint | YES       | The industry requests the title is changed to "low noise axial fans".<br>The industry welcomes the acknowledgment that low noise fans may not be as efficient.<br>The industry accepts this clause and would look towards reviewing it in future revisions. |

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|--|--|-----------|--|
| 17. 'Dual use fan' means a fan designed for both ventilation under normal conditions and emergency use as set out in Art. 1, 3 (b);  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok             | YES       | No changes   |
| 18. 'Reversible fan' means a fan capable of reaching at least 80% of the nominal forward air flow in the reverse direction.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok             | YES       | No changes   |
| <b>Article 3 - Ecodesign requirements</b>  |  |           |  |
| 1. The ecodesign requirements for fans are set out in Annex II, using definitions in Article 2 and Annex I.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok            | YES       | No changes   |
| 2. The fan minimum energy efficiency requirements of Annex I Section 2 shall apply from 1 January 2020.  | EVIA : see joint<br>Eurovent : joint<br>AMCAEurope joint | YES       | Editorial comment : should this be "requirements of Annex II"<br><b>No changes to the date 1. Jan. 2020</b>  |
| 3. The product information requirements on fans and how they must be displayed are as set out in Annex III. These requirements shall apply from 1 January 2020.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope ok              | YES       | No changes   |
| 4. For non-reversible dual use fans designed for both ventilation under normal conditions and emergency use as set out in Art. 1, 3 (b), the values of the applicable efficiency grades set out in Annex I will be multiplied by a factor 0.9. | EVIA : joint<br>Eurovent : joint<br>AMCAEurope: joint    | YES       | Editorial comment : should this be "Annex II"  |
| 5. For reversible fans, for dual use or not, the values of the applicable efficiency grades set out in Annex I will be multiplied by a factor 0.85.  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope joint     | YES       | Editorial comment : should this be "Annex II"<br><br>The industry requests a <b>factor of 0.81</b> for those fans which are both "dual use", as defined in Article 2.17, and "reversible", as defined in Article 2.18. |
| 6. For <b>low noise fans</b> the values of the applicable efficiency grades set out in Annex I will be multiplied by a factor 0.9.   | EVIA : joint<br>Eurovent : joint<br>AMCAEurope joint     | YES       | Industry request a change from "For low noise fans " to " <b>low noise axial fans</b> ", as already requested for article 2.16   |

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|   |  |           | Editorial comment : should this be "Annex II"      |
| 7. Compliance with ecodesign requirements shall be measured and calculated in accordance with requirements set out in Annex III.  | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint | YES       | Editorial comment : should this be "Annex II to V" |
| <b>Article 4 - Conformity assessment</b>  |  |           |  |
| The conformity assessment procedure referred to in Article 8 of Directive 2009/125/EC shall be the internal design control system set out in Annex IV to that Directive or the management system for assessing conformity set out in Annex V to that Directive. | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok          | YES       | No changes   |
| <b>Article 5 - Verification procedure for market surveillance purposes</b>  |  |           |  |
| When performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC, the authorities of the Member States shall apply the verification procedure set out in Annex IV to this Regulation.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope: ok           | YES       | No changes   |
| <b>Article 6 - Indicative benchmarks</b>  |  |           |  |
| The indicative benchmarks for the best-performing fans available on the market at the time of entry into force of this Regulation are set out in Annex VI.  | EVIA : ok<br>Eurovent : ok<br>AMCAEurope : ok          | YES       | No changes   |
| <b>Article 7 - Revision</b>   |  |           |  |



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| <p>The Commission shall review this Regulation no later than 5 years after its entry into force in the light of technological progress. The review will include the assessment of design options that can facilitate re-use and recycling. The results of this review shall be presented to the Ecodesign Consultation Forum.</p>  | <p>EVIA : joint<br/>Eurovent : joint<br/>AMCAEurope: joint</p>   | <p>YES</p> | <p>The industry requests that a future revision shall consider alternative metric systems to specify minimum requirements.<br/>Considering that the new requirements will come into force on 1 January 2020 it is proposed that the review should start no earlier than 1 January 2021</p>  |
| <p><b>Article 8 - Entry into force</b></p>   |  |            |   |
| <p>This Regulation repeals Commission Regulation (EU) 327/2010 and shall enter into force on the 20th day following its publication in the Official Journal of the European Union.</p>   | <p>EVIA : ok but see editorial comment<br/>Eurovent : ok but see editorial comment<br/>AMCAEurope : ok but see editorial comment</p>                                       | <p>YES</p> | <p>Editorial comment : the current regulation is 327/2011</p>   |
| <p><b>ANNEX</b></p>  |  |            |   |
| <p><b>ANNEX I – Definitions</b><br/>(1) ‘Measurement category’ means a test, measurement or usage arrangement that defines the inlet and outlet conditions of the fan under test;<br/><br/>(3) ‘Measurement category B’ means an arrangement where the fan is measured with a duct fitted to its inlet and outlet and a partition between inlet and outlet zone;<br/><br/>(4) ‘Measurement category C’ means an arrangement where the fan is measured with free inlet conditions and a duct fitted to its outlet and a</p> | <p>EVIA/<br/>Eurovent/European<br/>AMCA<br/>(2) ok<br/>(6) ok<br/>(7) ok<br/>(9) ok<br/>(10) ok<br/>(11) ok<br/>(13)ok<br/>(16) ok<br/>(18) ok<br/>(20) ok<br/>(21) ok</p> | <p>YES</p> | <p>(1)change the words “a test, measurement or usage” into “test and measurement”<br/><br/>(3) is wrong and should be “free inlet and ducted outlet”. Remove the text “and a partition between inlet and outlet zone”<br/><br/>(4) is wrong and should be “ducted inlet and free outlet”. Remove the text “and a partition between inlet and outlet zone”</p> |

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| <p>partition between inlet and outlet zone;</p> <p>(5) 'Measurement category D' means an arrangement where the fan is measured with a duct fitted to its inlet and outlet and a partition between inlet and outlet zone;</p> <p>(8) 'Fan efficiency' (<math>\eta_f</math>) is the ratio of the fan gas power output <math>P_u</math> and the electric power input <math>P_e</math>, both expressed in W and determined at bep, multiplied with correction factors for power conversion <math>C_p</math> and part load compensation <math>C_c</math>, following the expression:<br/> <math display="block">\eta_f = C_p \cdot C_c \cdot P_u / P_e</math>                     with a distinction between 'static' or 'total' efficiency depending on whether the fan gas power <math>P_u</math> has been determined with respectively the static or total pressure difference between fan in- and outlet;</p> <p>(12) 'Part load compensation' <math>C_c</math> is a correction factor with one of the following values:</p> <p>(14) 'Fan static pressure' (pfs), in Pa, is the omnidirectional force per unit surface area exerted at the fan outlet and is typically assessed by measuring the stagnation pressure in a (cylindrical) hole of appropriate geometry and dimensions, in duct wall or appropriate measurement instrument perpendicular to the direction of the gas flow</p> |                         |           | <p>(5) Remove the text "and a partition between inlet and outlet zone"</p> <p>(8) the industry requests to change "part load compensation" to "compensation of VSD losses".</p> <p>(12) the industry requests to change "part load compensation" to "compensation of VSD losses".</p> <p>14) The industry requests that the definition in EN ISO 5801 is used.</p> <p>15) The industry requests that the definition in EN ISO 5801 is used. With regards to jet fans only the definition from EN ISO 13350 should be used.</p> |

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| <p>(15) 'Fan total pressure' (pf), in Pa, is the directional force per unit surface area exerted at the fan outlet and is typically assessed by measuring the stagnation pressure in a (cylindrical) hole of appropriate geometry dimensions facing the direction of the gas flow or, for jet fans, by measuring the reactive thrust force exerted on the fan by the gas flow per unit fan outlet surface area;</p> <p>(17) 'Efficiency grade' is a parameter in the calculation of the target energy efficiency of a fan of specific electric input power at its bep (expressed as parameter 'N' in the calculation of the fan energy efficiency);</p> <p>(19) 'Test fan' is the fan, as defined in Article 2, whereby for the purpose of compliance testing the manufacturer:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> must add motor- or bearing struts and, except for jet fans, an orifice panel or orifice ring, to which these struts are attached for the benefit of testing;</li> <li><input type="checkbox"/> may remove the parts and geometry sections, e.g. in case the envelope extends beyond the defined inlet and outlet sections, that are not included in the defined stator;</li> <li><input type="checkbox"/> may conduct the tests with the geometrical</li> </ul> |                         |           | <p>17) we suggest that the words “target energy efficiency” be changed to “minimum fan efficiency”.</p> <p>(19) we think there is a typo mistake in the last bullet point. We think 0.5m should be 1m</p> <p>Jet fans should be deleted from the scale model method as there is no generally accepted method for scaling them.</p> |

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| <p>equivalent of the stator inner surface;<br/>11</p> <p><input type="checkbox"/> may conduct the tests with a scale model and calculate the results for the real-size product if the latter has an impeller diameter above 1 m for jet fans or 0,5 m for other fans;</p> <p><input type="checkbox"/> may conduct the tests at customer's or manufacturer's site if the latter has an impeller diameter above 1 m for jet fans or 0,5 m for other fans.</p> <p>provided that reliable, accurate and reproducible test- and calculation methods are used and modifications, test conditions and calculations are meticulously reported as prescribed in Annex I, section 3.</p> |  |            |   |
| <p><b>ANNEX II - Ecodesign requirements for fans</b></p> <p>Fan energy efficiency requirements</p> <p>The minimum fan efficiency (<math>\eta_{\min}</math>) values as a function of the electric power input <math>P_e</math> (in kW), efficiency grade <math>N</math> from the equations:</p> <ul style="list-style-type: none"> <li>– for fans with <math>P_e &lt; 10</math> kW:<br/><math>\eta_{\min} = 0.0456 \text{ LN}(P_e) - 0.105 + N</math></li> <li>– for fans with <math>P_e \geq 10</math> kW:<br/><math>\eta_{\min} = 0.011 \text{ LN}(P_e) - 0.026 + N</math></li> </ul>   | <p>EVIA : joint<br/>Eurovent : joint<br/>AMCA Europe : joint</p> | <p>YES</p> | <p>The industry proposes for all fans above 10kW to use the formula<br/><math>\eta_{\min} = 0.0078 \text{ LN}(P_e) - 0.0188 + N</math><br/>from ISO12759)</p> |

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|  |                      |  |                                   |  |
|  |                      | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint | YES                               | <p>The industry requests N value of 0.48 for static and 0.60 for total limits for axial fans. We wish to note that the slope has increased resulting in a bigger step for 10kW and above fans.</p> <p>The industry sees that radial fans above 5kW should still have a separate category. Therefore the proposal is for the words "forward curved &lt;5kW and radial". And delete the word "and radial" from the fan type.</p> |
| Fan type   | Measurement category | Pressure   | N                                 |  |
| Axial  | A, C                 | static   | 0,50 0,48                         |  |
|  | B, D                 | total  | 0,64 0,60                         |  |
| Forward curved and radial <5kW and radial                                  | A, C                 | static   | 0,52                              |  |
|  | B, D                 | total  | 0,57                              |  |
| Forward curved and radial ≥5kW, Backward curved                            | A, C                 | static   | 0,64                              |  |
|  | B, D                 | total  | 0,67                              |  |
| Mixed flow   | A, C                 | static   | $0,57+0,07 \cdot (\alpha -45)/25$ |  |
|  | B, D                 | total  | 0,67                              |  |
| Cross flow   | B, D                 | total  | 0,21                              |  |
| For jet fans the jet-fan impeller efficiency shall be equal or above 0,50. |                      | EVIA : joint<br>Eurovent : joint<br>AMCAEurope : joint | YES                               | <p>the industry sees that the consultant has not analysed small jet fans used for car park ventilation.</p> <p>The proposed limit of 0.5 means that all small jet</p>  |

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|  |   |            | fans for car park ventilation are removed from the market.<br>Either the limit is adjusted or the proposed limit is for jet fans above 5kW.   |
| <p><b>ANNEX III - Product information requirements</b></p> <p>(1) applicable fan efficiency (<math>\eta_f</math>), rounded to the closest value in 3 decimal places, with specification of the type of fan (axial, jet, mixed flow, centrifugal or cross flow) or in the case of a jet fan, the jet-fan impeller efficiency <math>\eta_r(T)</math> and specific fan 'jet fan';</p> <p>(6) year of manufacture;</p> <p>(9) the electric motor power input <math>P_e</math> (in kW), flow rate <math>q_v</math> (in <math>m^3/h</math> rounded to the closest integer value when <math>&lt;1 m^3/s</math>, else in <math>m^3/s</math> rounded to the closest value in 2 decimal places) and applicable pressure difference <math>\Delta p</math> (in Pa, rounded to the closest integer value) at bep;</p> <p>(10) fan speed in rotations per minute (rpm, rounded to the closest integer value) at bep;</p> <p>4. The information referred to in points 2(1), 2(2), 2(3), 2(4) and 2(5) shall be durably marked on or near the rating plate of the fan, where for point 2(5) one of the following forms of words must be used to indicate what is applicable:<br/>— A variable speed drive must be installed with</p> | <p>1. ok for all<br/>2.(1) ok for decimal but see joint position on name plate<br/>2.(2) ok for all<br/>2.(3) ok for all<br/>2.(5) ok for all<br/>2.(7) ok for all<br/>2. (8) ok for all<br/>2. (11) to (14) ok for all<br/>3. ok for all<br/>5. ok for all</p> <p>Eurovent :<br/>AMCA Europe :</p> | <p>YES</p> | <p>The industry fully understands the strong need to express any correction to minimum efficiency values only as multipliers, and never as percentages, to prevent ambiguities; at the same time is disappointed that all the work undertaken creating databases and printing SW tools, to manage the data used in thousands of labels and documents, now has to be replaced. Why can't we stay with the established practice of expressing product efficiencies as percentages?</p> <p>2. (1) The industry requests to delete the requirement to specify the fan type on the name plate. A 125W fan is not large enough to have a name plate to accommodate all this extra information.</p> <p>2 (4) The industry proposes not to publish the grade N, but instead to state the new value of the minimum fan efficiency required in 2020.</p> <p>2.(6) Year of manufacture cannot be shown on website. Delete the point.</p> <p>2. (9) the industry requests to use either <math>m^3/s</math> or</p> |

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| <p>this fan',<br/>— 'A variable speed drive is integrated within the fan'.</p> <p>6. Manufacturers shall indicate the total weight per fan of the permanent magnets, if any, used in the motor, in kg with 2 digit precision</p>   |  |            | <p>m<sup>3</sup>/h, both should be allowed. Same request for W and kW. It is requested to have at least three significant digits.</p> <p>2. (10) "revolution" instead of "rotation"</p> <p>4. The label on the small fan is not big enough to include the words "a variable speed drive must be installed with this fan" or "a variable speed drive is integrated within the fan", we propose to use "VSD required" or "VSD included". Year of manufacture should be included on the fan name plate or on the final product name plate.</p> <p>6. <i>The industry requests this section is deleted, if not the industry requests only if the magnets using rare earth elements and that the information is displayed on data sheets and disposal instructions.</i></p> |
| <p><b>ANNEX IV - Verification procedure for market surveillance purposes</b></p> <p>4. The model shall be considered to comply with the provisions set out in this Regulation if the average of the applicable fan efficiency (<math>\eta_f</math>) of the three units referred to in point 3 is at least the minimum fan efficiency (<math>\eta_{min}</math>) <b>0,93</b> using the formulas and the applicable efficiency grades</p> | <p>EVIA : joint<br/>Eurovent : joint<br/>AMCAEurope: joint</p> | <p>YES</p> | <p>4. The industry notices there is an error in point 4, the efficiency should be <b>0.90</b> not 0.93.</p>  |

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| from Annex II.  |  |           |   |
| <b>ANNEX V - Measurement and calculation methods</b>  | EVIA : ok<br>Eurovent :ok<br>AMCAEurope: ok          | YES       |   |
| <b>ANNEX VI - Indicative benchmarks</b><br><br>The maximum values relate to the achievable efficiency grade N in % (see minimum efficiency formulas) with clean air and no space and/or noise restrictions. The minimum values apply to contaminated air (some dust load) and space, noise and/or other operational restrictions at the limit of what is still in scope according to the exemptions in Article 1. | EVIA : joint<br>Eurovent : joint<br>AMCAEurope joint | YES       | The industry notes that the N maximum is too high. The industry is disappointed that the consultant and the Commission still do not recognise that there is not just one value for maximum, the extensive data provided by the industry has been ignored. This is particularly important for SMEs producing special purpose fans.<br><br>Editorial change : third category should be :<br>">5kW"<br><br>Changes to radial as discussed in Annex II. |