
Energy Using Product (EuP) Directive Preparatory Study

Lot 11: Fans for Ventilation in Non-Residential Buildings

Outcomes of 1st Stakeholder Meeting

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Data availability and Stakeholder engagement

- Data availability - especially in terms of number of items sold or produced of specific types of fans - is very scarce
- Reliability of available data is doubtful
- Data concerning motors used in fans/fan systems must be coordinated with motors section
- Fan manufacturers could possibly provide additional data on market figures which are nevertheless confidential and could therefore not be used directly in the report
- More Stakeholders in particular concerned with fans must be involved, especially the main players in the European fan industry from Italy (Nikotra) and Spain (Soler & Palau)



Standards and Legislation

Standards:

- New ISO 5801 with new Annex E (Efficiency of impeller only) available
- New standard EN14461 available: specification of machinery directive for fans

European Legislation:

- Uncertainty if Energy Performance of Buildings Directive (EPBD) will have relevant impact on fan efficiency in building applications
- Machinery directive applicable to fans (due to moving parts)
- Low Voltage Directive (LVD) applicable for smaller single phase fans

Furthermore:

- Legislation/Standards outside EU (USA, Australia, China etc.) should be checked
- Stronger focus on eco-design and life cycle required, i.e. also environmental legislation must be identified which is not only addressing energy efficiency



Selection of fans to be investigated

Suggested selection of fan types to be investigated was basically agreed on, even though other fan types should maybe be considered in addition, such as:

- Forward-curved centrifugal single box extract fans for ventilation of 1 or 2 rooms (e.g. toilets, multiple kitchen extract fans etc.)
- Big window fans used in pubs, clubs, take-aways (350 mm single phase 100 W)
- Partition fans equally important as ducted axial flow, esp. in agricultural applications
➔ it has to be checked if agricultural applications are within the scope of the study (non-residential buildings)

Other comments on selected fan types:

- For open inlet axial/propeller fan (6-pole) also a lot of 8-, 12-pole used because of low noise level; 12-pole more efficient in use than 6-pole with attenuator
- In AHU also plug fans became popular in the last 2 to 3 years
- Backward-bladed DIDW fan typically with single V-belt (twin V-belt when power goes up); trend to plug-fans (centrifugal without casing)



Motors used in fans

- Market share of DC motors estimated 5-10% and rising
- Fans with integrated motor since 1955; integrated EC motor since 1996
- Many fan manufacturers produce packaged units with motor and fan; some manufacturers produce integrated motor/fan-units
- AC induction integrated up to 5.5 kW, DC up to 3 kW (e.g. produced by Ziehl-Abbeg, Rosenberg, Gebhard, EBM)
- Prices of Variable Frequency Drives (VFD) decreasing (because of cost reductions in electronic equipment)
- VFD has to be considered as one option; fans with VFD could be "Best Available Technology" (BAT) while induction motor would be the "Base case"
- Fans with integrated motor cannot be analysed by separating fan and motor
➔ for reasons of comparability other fans also have to be analysed including the motor



Other

- Renewed interest in natural ventilation
- Forward-curved fans generally used in significant numbers because of cheap prices
- Differences between national markets to be taken into account (e.g. depending on noise regulations, traditional behaviour etc.)
- Maintenance usually not carried out as suggested by manufacturer
- installation and cabling cost are an important parameter when selecting a fan system

