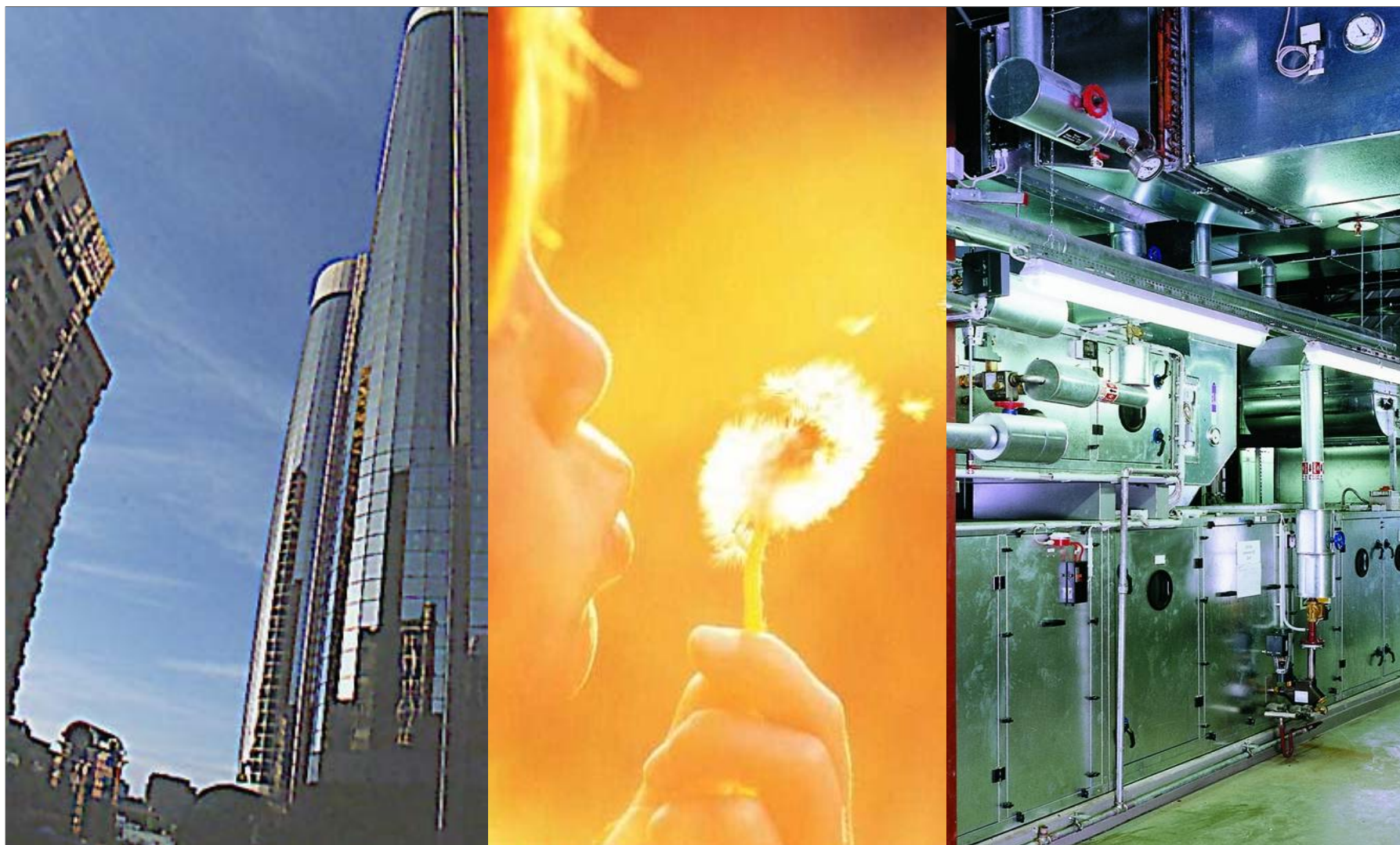


EuP Lot 11 – Fans



EuP Lot 11 – Fans

Committees and documents

“EuP Lot 11 Fans“ workshop at the VDMA

Start in May 2006

About 15 German fan manufacturers taking part

Stakeholder in Lot 11: ebm-papst, VDMA FV ALT, Gebhardt Ventilatoren, Ziehl-Abegg

Intensive collaboration with study writer

Coordination and representation of interests of German fan manufacturers

Basic document

EuP Lot 11: Fans for ventilation in non-residential buildings

Final report April 2007 (updated)

Authors of study

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in collaboration with

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Independent Consultant, Colchester, UK

EuP Lot 11 – Fans

Committees and documents

Consultation forum for Lot 11 Fans

First meeting on May 27, 2008 in Brussels

Consultancy circle concerning EuP guideline

First meeting on May 14, 2008 in Berlin

Paper discussed

Working document on possible eco-design requirements for ventilation fans

Source

European Commission

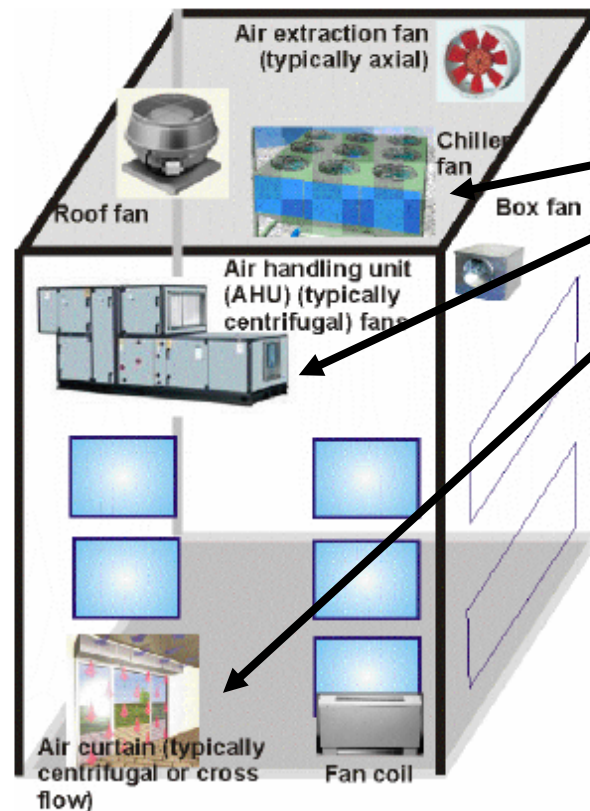
EuP Lot 11 – Fans

Agenda

- **Scope** (slides 5 to 8)
- **Conformity assessment / CE** (slides 9 to 11)
- **Roadmap (time line)** (slide 12)
- **Efficiency requirements (MEPS)** (slides 13 to 15)
- **Minimum requirements (MELS)** (slide 16)
- **Summary** (slide 17)

EuP Lot 11 – Fans Scope

Product definition as per study



Please note:

The product is the fan, which is manufactured in various designs (axial, centrifugal, diagonal) and which may be used in the most different of applications!

Application examples:








Heat exchangers/coolers, condensers, roof fans, central ventilation units, air-conditioning units/AHU, etc.

Figure 10: Fans for non residential buildings (agriculture applications are not shown)

EuP Lot 11 – Fans

Product definition

Table 11: Definition of product categories for ventilation fans (non-residential buildings)

Product Category	Direction of flow	Type	Typical Sizes [mm]	Example
1	Axial	≤ 300 Pa (static pressure)	200 - 1,400	 Source: Helios
2		> 300 Pa (static pressure)	200 - 1,400	
3	Centrifugal	forward curved blades (with casing)	120 - 1,600	 Source: Nicotra
4		backward curved blades (no casing)	120 - 1,600	 Source: ebmpapst
5		backward curved blades (with scroll housing)	120 - 1,600	 Source: Ziehl-Abegg
6	Other	Box fans	100 - 1,000	 Source: Fläktwoods
7		Roof fans	250 - 1,000	 Source: Gebhardt
8		Cross-flow fans	60 - 120	 Source: ebmpapst

Note: Size refers to impeller diameter except for box fans where it refers to spigot size.

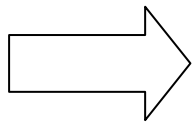
Please note:
Upgraded products for which the scope may not apply as they contain products from category 4 or 5.

EuP Lot 11 – Fans

Scope

Ventilation fans

There are no typical ventilation fans. Their application** is determined by their final use in a unit or process.



**Fans of all designs* with
125 W to 500 kW input power
(axial / centrifugal / tangential / diagonal fans)**

Prerequisite:

Exclusion of applications such as box fans (Cat. 6) and roof fans (Cat. 7), as upgraded level (upgraded product)

Elimination of term “ventilation” in Annex 2

Advantages:

Lot 11 definitions can be used as basis for further EuP studies; implementation ensures accurate discrimination; reduction in expenditure for both EU and industry

EuP Lot 11 – Fans

Scope - Exceptions

***Exceptions from special purpose fans (Report 2008-04, chapter 8.1.2.2)**

- **Fans for smoke and emergency-smoke extraction**
- **Fans for industrial process ventilation (fluids other than air, conveying fans, hot gas, high pressure etc.)**
- **Fans for automotive application, trains, planes etc.**
- **Fans falling under the ATEX-Directive**
- **Fans with power inputs exceeding 500 kW**

Danger:

All references and cross-references to the study make for inaccuracy in the implementation stage

Assumption:

Once implementation stage has begun, study is no longer consulted

EuP Lot 11 – Fans

Conformity assessment

****Extension** (Report 2008-04, chapter 8.1.2.2)

Necessity:

Assessment of compliance has to be effected for both fans and all products including fans according to the scope of the implementation stage.

Threat:

Fans not meeting minimum efficiency could enter the market via upgraded products.

Example:

Control cabinet using a non-compliant ventilation fan is imported from non-EU country.

EuP Lot 11 – Fans Conformity assessment

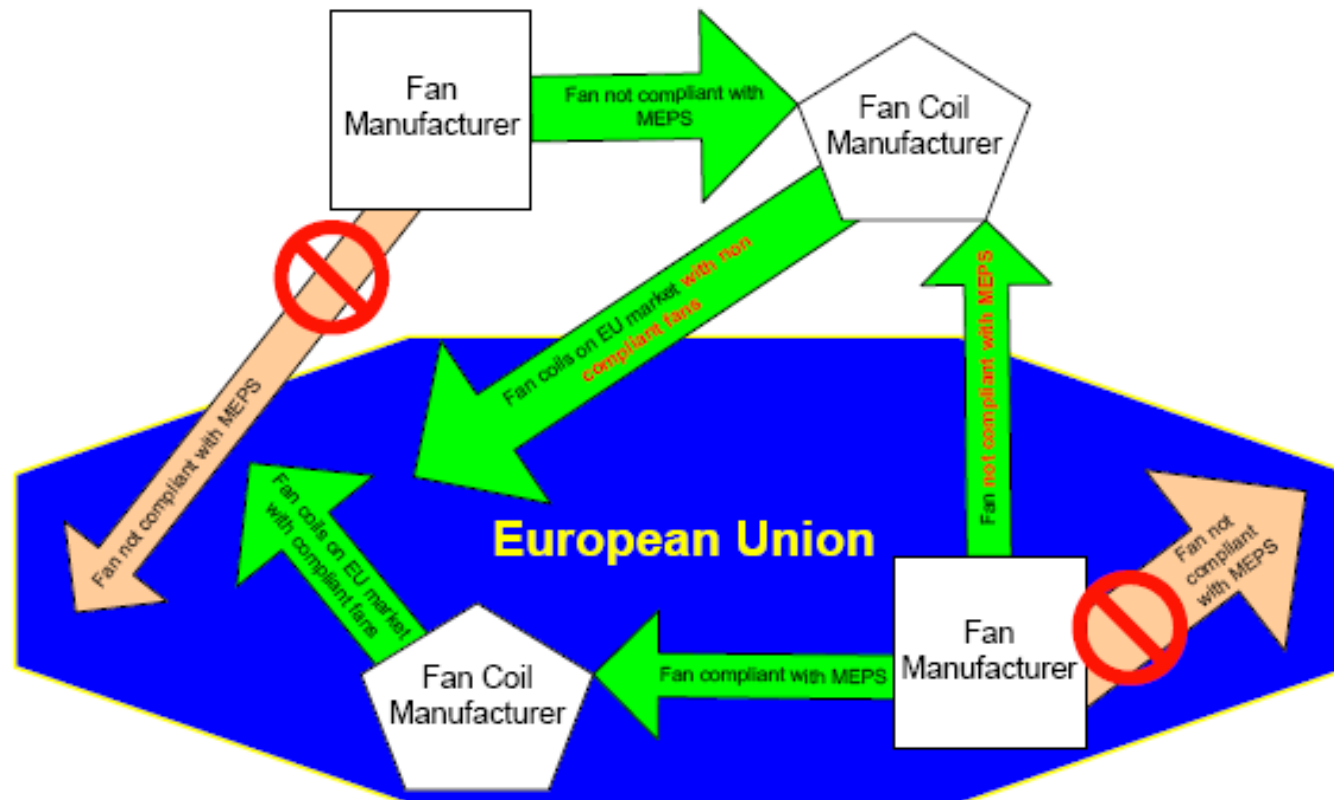


Figure 131: The leak for non compliant products entering Europe, the example of fan coils

EuP Lot 11 – Fans

Conformity assessment

Conformity Assessment (WD page 3)

Addendum: All energy-using products (product containing a fan), also the parts and components for which individual MEPS exist (fans), must be compliant with the corresponding implementing measures.

A conformity assessment shall be carried out according to Article 8(2), and Annex IV (Internal design control) or Annex V (Management system for assessing conformity) of Directive 2005/32/EC.

EuP Lot 11 – Fans Implementation / Roadmap

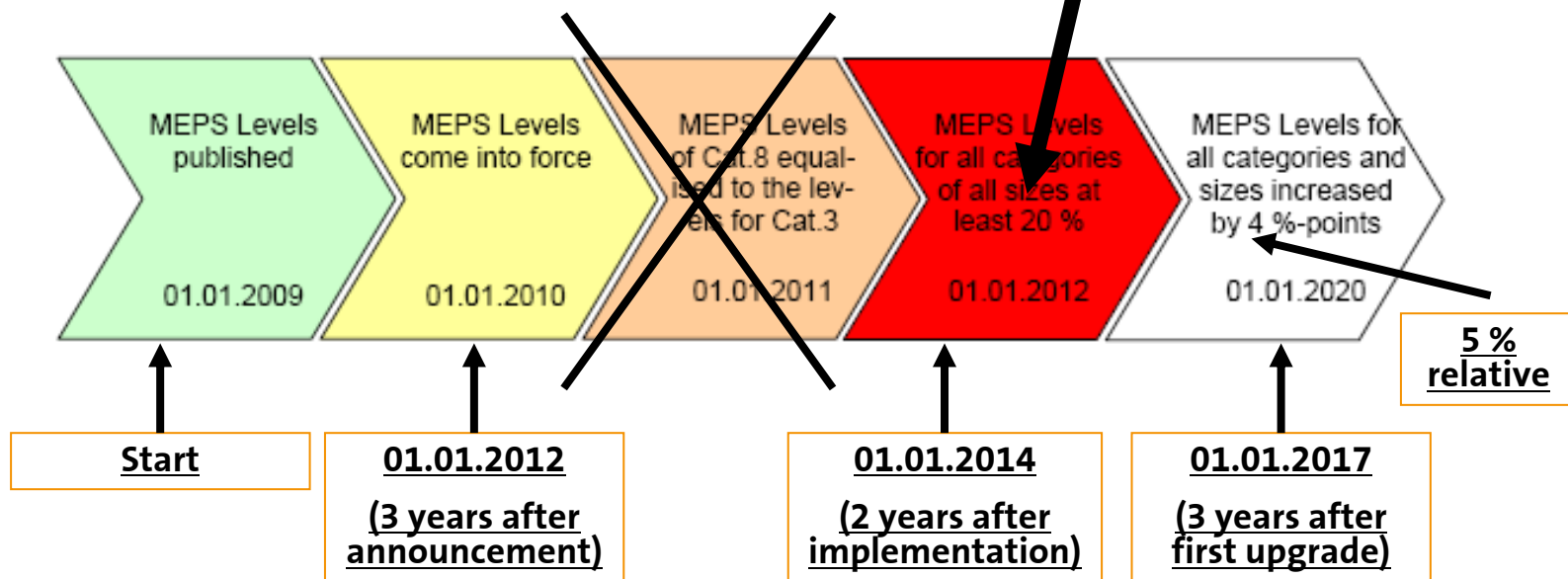
Please note:

Basically okay.

Transition period of three years for fan manufacturers and processors (e.g. manufacturers of central ventilation units) required starting with official announcement as to implementation stage.

Not feasible in case of cross-flow fans, here we risk banning.

Table 57: Proposed MEPS implementation plan for Fans



EuP Lot 11 – Fans

MEPS 2010 (2012)

Table 1: Minimum energy performance requirements for fans on 2010 (2012) (Proposal VDMA)

Fan Category	Power Range		
	0.125-1 kW	1-10 kW	10 -500 kW
MEL1 - Axial ≤300Pa	3.42*ln(P _{el}) + 27.12		=35
MEL2 - Axial > 300Pa	2.28*ln(P _{el}) + 29.75		=35
MEL3 - Centrifugal forward with housing	2.74*ln(P _{el}) + 28.69 (23 – 40 %)		=35 (40)
MEL4 - Centrifugal backward free wheel	4.68*ln(P _{el}) + 47.23 (38 – 55%)		=58 (55)
MEL5 - Centrifugal backward with housing	4.56*ln(P _{el}) + 44.49 (35 – 58%)		=55 (58)
MEL 6 - not applicable, upgraded product			
MEL 7 - not applicable, upgraded product			
MEL8 – Cross-flow fans	=8	11.73*ln(P _{el}) + 8	=35 (10)
	(5 – 10 %)		
Results should be rounded to one digit, P _{el} to be entered in kW			

EuP Lot 11 – Fans

MEPS 2012 (2014)

Table 2: Minimum energy performance requirements for fans on 2012 (2014) (Proposal VDMA)

Fan Category	Power Range		
	0.125-1 kW	1-10 kW	10 -500 kW
MEL1 - Axial <=300Pa	3.42*ln(P _{el}) + 27.12		=35
MEL2 - Axial > 300Pa	2.28*ln(P _{el}) + 29.75		=35
MEL3 - Centrifugal forward with housing	2.74*ln(P _{el}) + 28.69		=35 (40)
MEL4 - Centrifugal backward free wheel	4.68*ln(P _{el}) + 47.23 (38 – 55%)		=58 (55)
MEL5 - Centrifugal backward with housing	4.56*ln(P _{el}) + 44.49 (35 – 58%)		=55 (58)
MEL 6 - not applicable, upgraded product			
MEL 7 - not applicable, upgraded product			
MEL8 - Cross-flow fans	2.74*ln(P _{el}) + 28.69 (5 – 10 %)		=35 (10)
Results should be rounded to one digit, P _{el} to be entered in kW			

EuP Lot 11 – Fans

MEPS 2020 (2017)

Table 3: Minimum energy performance requirements for fans on 2020 (2017)

(Proposal VDMA)

Fan Category	Power Range		
	0.125-1 kW	1-10 kW	10 -500 kW
MEL1 - Axial ≤300Pa	$3.42 \cdot \ln(P_{el}) + 31.12$ ($[3.42 \cdot \ln(P_{el}) + 27.12] \times 1.05$)		=39 (36.75)
MEL2 - Axial > 300Pa	$2.28 \cdot \ln(P_{el}) + 33.75$ ($[2.28 \cdot \ln(P_{el}) + 29.75] \times 1.05$)		=39 (36.75)
MEL3 - Centrifugal forward with housing	$2.74 \cdot \ln(P_{el}) + 32.69$ ($[2.74 \cdot \ln(P_{el}) + 28.69] \times 1.05$)		=39 (42)
MEL4 - Centrifugal backward free wheel	$4.68 \cdot \ln(P_{el}) + 51.23$ ($[4.68 \cdot \ln(P_{el}) + 47.23] \times 1.05$)		=62 (57.75)
MEL5 - Centrifugal backward with housing	$4.56 \cdot \ln(P_{el}) + 49.49$ ($[4.68 \cdot \ln(P_{el}) + 44.49] \times 1.05$)		=59 (60.90)
MEL 6 - not applicable, upgraded product			
MEL 7 - not applicable, upgraded product			
MEL8 - Cross-flow fans	$2.74 \cdot \ln(P_{el}) + 32.69$ ($(5 - 10 \%) \times 1.05$)		=39 (10.50)
Results should be rounded to one digit, P_{el} to be entered in kW			

EuP Lot 11 – Fans

Minimum requirements

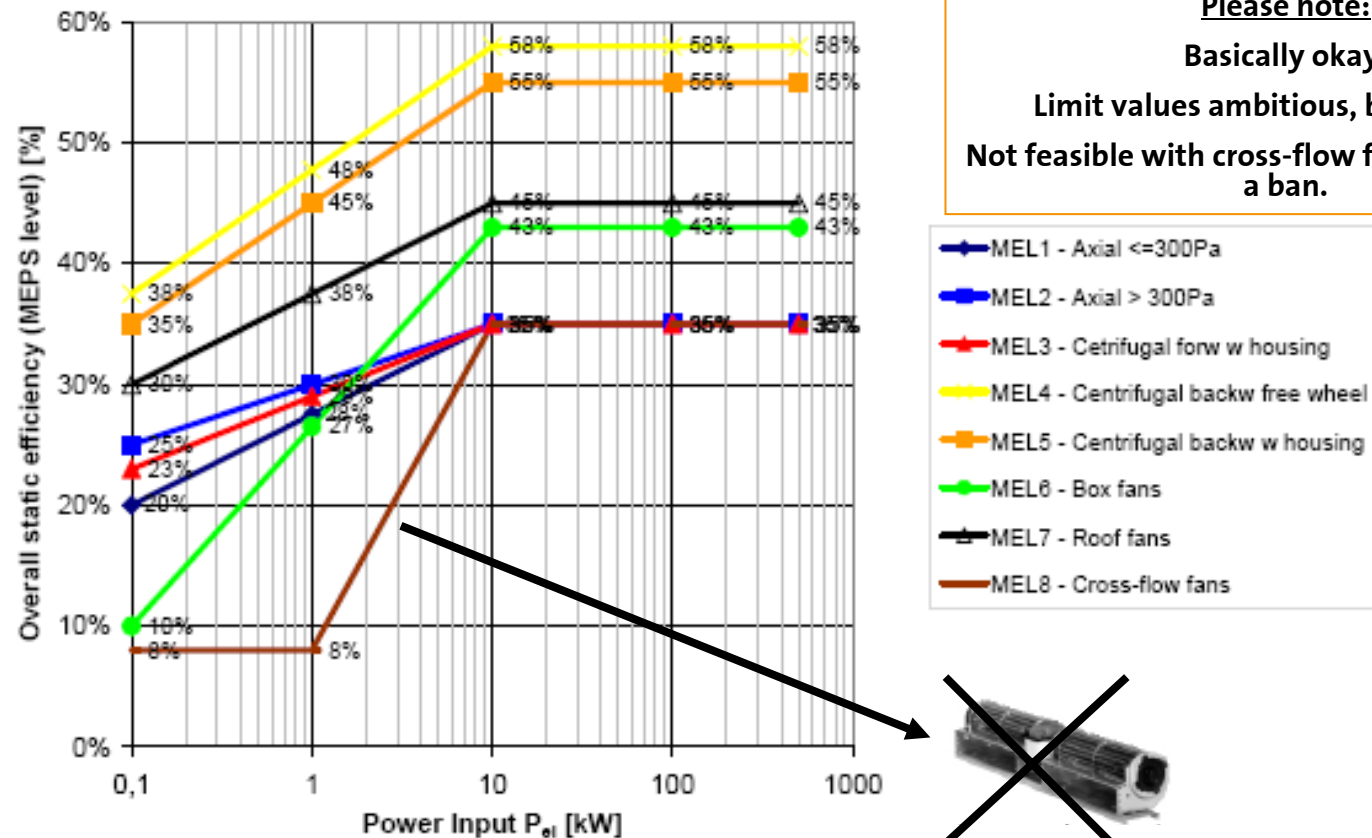


Figure 126: Proposed Minimum Efficiency Performance Standards

EuP Lot 11 – Fans Summary

- **Scope**
Fans in general with specific exceptions
Enables clear classification to respectively discrimination from other studies and implementation measures.
Minimises time and costs of future studies as to end products.
- **Conformity assessment / CE mark**
Fans in general, even when installed in units
Prevents non-compliant fans in end products from entering the market
- **Roadmap**
Reasonable transition periods necessary, new timing necessary for steps
Necessary for implementation and product modification with fan and equipment manufacturers
- **Minimum efficiency requirements (MEPS)**
Slight adjustments needed
Enabling technical realisation

A vertical rectangular image on the left side of the slide shows a single water drop falling into a pool of water, creating concentric ripples. The background of the slide is a solid dark blue.

Thank you very much!

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