

What is the purpose of the ErP-directive?

With the ErP-directive 2009/125/EC (eco-design) the European Union defines requirements for the ecological design of products relevant to energy consumption. The detailed requirements for fans are described in the commission regulation 327/2011.

From this in essence results the requirement of the (minimum) target energy efficiency for fans. It is called “system”

Included in this are the efficiency degrees IE2, resp., IE3 (regulation (EC) 640/2009, resp., IEC 60034-30) for motors.

Fans excepted from the ErP-directive

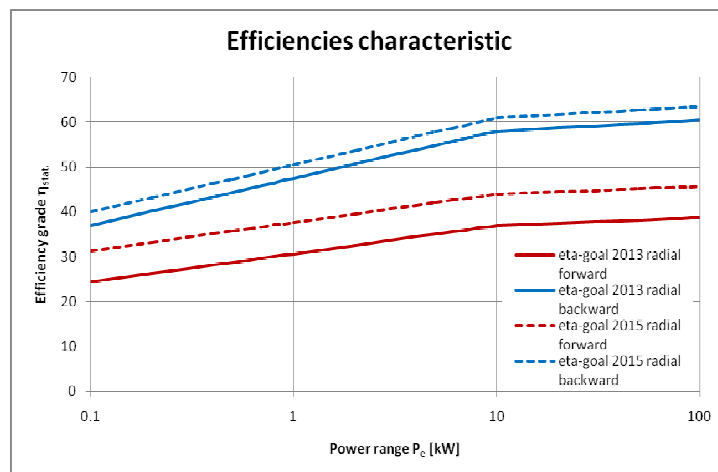
According to article 1, paragraph 3 the directive 327/2011 does not apply to fans, which are designed specifically to operate:

- In potentially explosive atmospheres as defined in Directive 94/9/EC (ATEX), of the European Parliament and the Council.
- In toxic, highly corrosive or flammable environments or in environments with abrasive substances.

Requirements of the efficiency

For fans (minimum) target energy efficiencies are defined.

In a first tier as from 2013 and in a second, heightened level as from 2015.



What does the (minimum) target energy efficiency refer to?

The indication of the (minimum) target energy efficiency of the fans applies to the optimum point, i.e., the point where the fan achieves its optimum energy efficiency point.

Important: The (minimum) target energy efficiency of the fan does not refer coincide to the design – resp., the operating point.

Calculation of the (minimum) target energy efficiency

The demanded (minimum) target energy efficiency is calculated from:

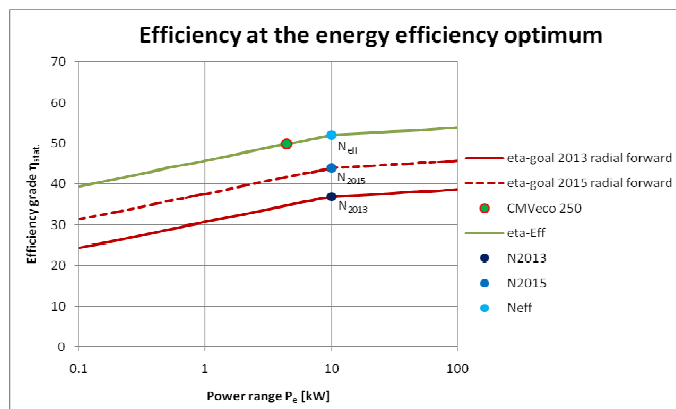
- the absorbed electric power
- the type of impeller geometry
- the measurement category

The following formulas apply (measurement category A, C):

Fan type	Colasit	Power range P in kW	Target energy efficiency	Efficiency grade N	
				2013	2015
Radial fan with forward curved blades or radial blades	CMVeco CMV CMMV CRDV CKV / CCV	$0.125 \leq P \leq 10$	$\eta_{Ziel} = 2.74 \cdot \ln(P) - 6.33 + N$	37	44
		$10 < P \leq 500$	$\eta_{Ziel} = 0.78 \cdot \ln(P) - 1.88 + N$		
Radial fan with backward curved blades with housing	CHVN CMHV CHVS	$0.125 \leq P \leq 10$	$\eta_{Ziel} = 4.56 \cdot \ln(P) - 10.5 + N$	58	61
		$10 < P \leq 500$	$\eta_{Ziel} = 1.1 \cdot \ln(P) - 2.6 + N$		
Axial fan	CDVA	$0.125 \leq P \leq 10$	$\eta_{Ziel} = 2.74 \cdot \ln(P) - 6.33 + N$	36	40
		$10 < P \leq 500$	$\eta_{Ziel} = 0.78 \cdot \ln(P) - 1.88 + N$		

Effective grade of efficiency

From the effective achieved overall efficiency the efficiency for a power of 10kW can be calculated. This value corresponds to the effective efficiency grade N_{eff} . This value has to be indicated on the data plate of the fan.



Motors

The requirements of electric motors are defined in the regulation (EC 640/2009, resp., IEC 60034-30).

- since 16.06.2011: as from 0.75 kW IE2 motors have to be utilised.
- as from 1.1.2015: IE3 as from 7.5 kW, resp., IE2 plus frequency converter
- as from 1.1.2017: IE3 as from 0.75 kW, resp., IE2 plus frequency converter

Exceptions in the EC directive:

- Motors, which are specially for operation in potentially explosive atmospheres in the sense of the directive 94/9/EC
- 2-level motors
- 8-pole motors

Effects on the Colasit-products

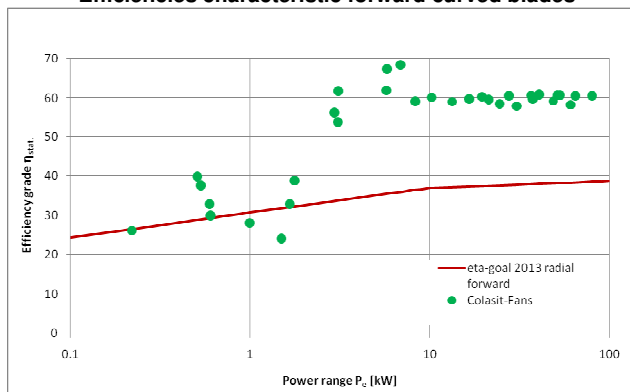
Based on the typical application fields, most Colasit-fans are not affected by the ErP-directive. Colasit nonetheless strives to correspond to the requirements of the execution directive

Furthermore the roof fans are excluded from the standard, because they are defined as appliance.

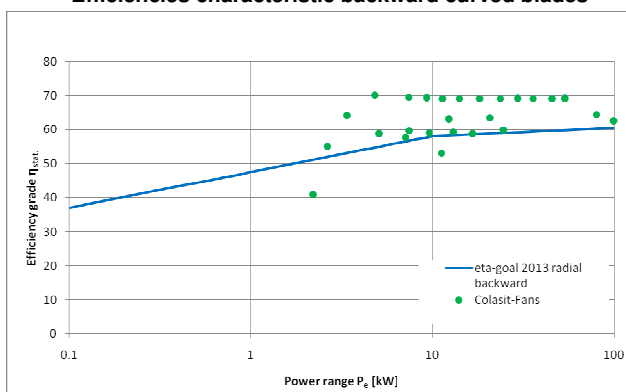
Status of the Colasit fans

ErP 2013

Efficiencies characteristic forward curved blades



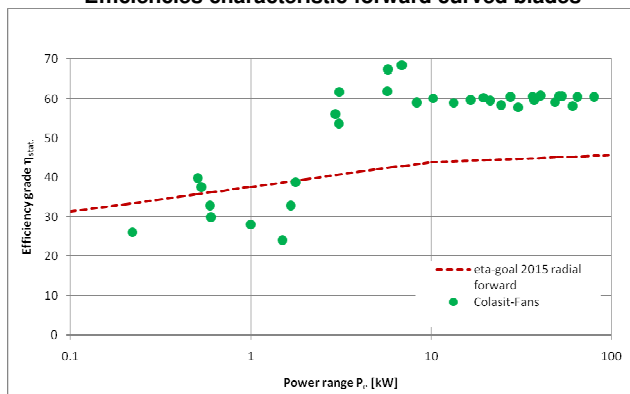
Efficiencies characteristic backward curved blades



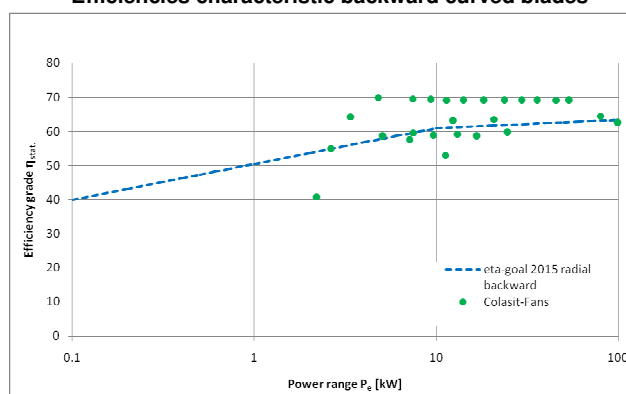
The ERP 2013 is complied by CMVeco, CMV, CMMV, CMHV, CHVS, CHVN
 Excepted from this are: CMVeco 125/125, 160/160, 200/180, CRDV, CHVS 63, 250 and CHVN 1250.

ErP 2015

Efficiencies characteristic forward curved blades



Efficiencies characteristic backward curved blades



The ERP 2015 is complied by CMVeco, CMV, CMMV, CMHV
 Excepted from this are: CMVeco 125/125, 160/160, 200/180, CRDV, CHVS und CHVN



ColaVent

The new online software „ColaVent“ will be launched in April 2013. The program calculates the effective (energy) efficiency. For this purpose, the motor efficiencies η_{Motor} are required, which have to be recorded in the partner-specific motor list.

Data plate of the fan

According to regulation 327/2011 the data plate of the fan has to be in future complemented with the following indications:

- The overall efficiency (η), rounded-off to one decimal
- The measuring category (A-D) utilised for determining the energy efficiency
- Efficiency category (static or total)
- Efficiency at the energy efficiency optimum
- Whether the calculation of the fan efficiency is based on the assumption, that a rotation frequency converter is utilised; if yes, whether this is incorporated in the fan or has to be installed with it.

As of standard, for Colasit- fans the measuring “category C” and the “static” efficiency are applicable. ColaVent in addition calculates the overall efficiency and the efficiency at the efficiency optimum, so that the data plate can be established according to the standards.

What is Colasit planning?

In part the demanded efficiency degree can be achieved by utilising a higher grade motor. The CRDV design is revised.

Useful links

Directive 2009/125/EC:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:285:0010:0035:DE:PDF>

Regulation 327/2011:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:090:0008:0021:DE:PDF>

Low-voltage asynchronous motors in accordance with the new efficiency standard and new efficiency classes:

<https://www.automation.siemens.com/mcms/infocenter/dokumentencenter/ld/Documentsu20Brochures/lv-motor/ws-ie-flyer-de.pdf>