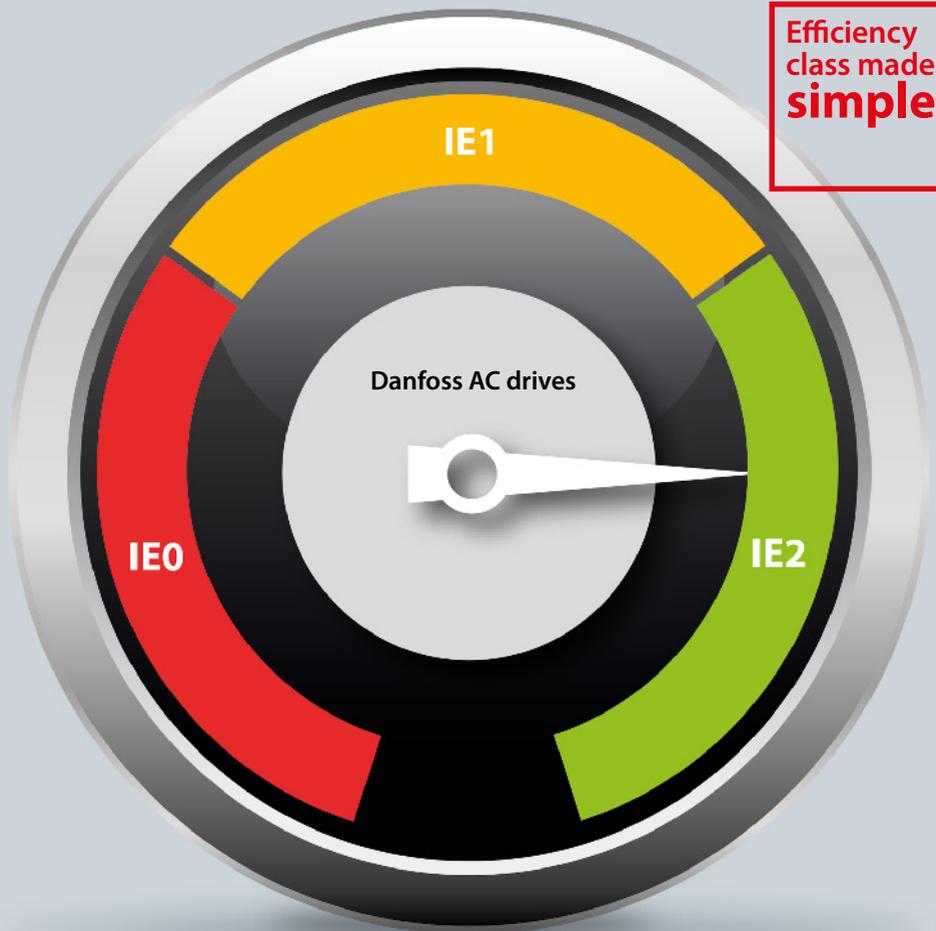


Ten things you need to know about Ecodesign

Your Ecodesign questions, answered

Efficiency
class made
simple



1. What is the Ecodesign directive?

The Ecodesign Directive is the legislative framework that sets requirements on all energy-related products in the domestic, commercial and industrial sectors throughout Europe.

The full title is the Ecodesign Directive for Energy Related Products (ErP) 2009/125/EC.

The Ecodesign requirements are only mandatory within the European Union. These requirements are similar to the legislative requirements for energy-related products which apply in North America and Australia.

2. What are the Ecodesign requirements for electrical motors?

The minimum energy efficiency limit for the majority of motors is class IE3. An alternative is to use an IE2 motor with a drive, according to regulation 640/2009. These IE2 motors are equipped with a label indicating that it is mandatory to operate them with a drive.

For detailed timeline see point 8.

3. Which standards deal with energy efficiency of drives and power drive systems?

The international product standard IEC61800-9 deals with the energy efficiency of drives and power drive systems (PDS). A PDS is also known as motor+ drive system. It specifies the classification of drives and power drive systems, and the determination of partial load efficiency. The standard IEC 61800-9 is harmonized in Europe as EN 61800-9 and replaces the earlier standard EN 50598 (-1 and -2). The differences between the two standards are minor and consist mainly of adjustments that cover the different grid voltages and frequencies (50 Hz/60 Hz) around the world.

4. Does Ecodesign affect motor + power drive systems?

The IEC61800-9-2 standard defining the IE classes for drives also defines the IES class for motor + drive systems, known as power drive systems. The "S" is added to indicate that the class is related to the power drive system (PDS).

Minimum efficiency requirements for PDS are likely to be beyond the scope of Ecodesign until 2020.

5. What impact does Ecodesign have on my business?

At the very least, the Ecodesign Directive positively impacts your energy usage. The main goal of the Directive is to improve the energy efficiency of products throughout the EU, and you should be able to see this as soon as you start using products that comply with the directive.

6. How do I classify a power drive system when the components are sourced separately?

Combining drive IE and motor IE class to a PDS IES class is not possible. To determine the IES class, simply add the losses of the motor at nominal load (100% speed and 100% torque) to the losses of the drive at nominal load (100% frequency and 100% load). Compare the sum to the reference value for the IES class, given in the IEC 61800-9-2 standard, and you will get the corresponding IES class.

When using Danfoss drives you can simply use the ecoSmart tool (see point 10) to determine the IES class. It is easy to do business with Danfoss!

7. How are the Minimum Efficiency Performance Standard (MEPS) regulations updated?

Requirements for minimum efficiency performance are set in Europe as a consequence of the implementation of the Ecodesign Directive for Energy Related Products (ErP) 2009/125/EC.

The regulation is introduced step-by-step and the requirements gradually intensify over time.

8. What is the timeline for implementation of the European MEPS* regulations?

Introduction date	MEPS in Europe	Applies to	Power range
16.06.2011	IE2	Motors	0.75-375 kW
01.01.2015	IE2	Motors	0.75-7.5 kW
	IE3 or IE2 + drive	Motors	7.5-375 kW
01.01.2017	IE3 or IE2 + drive	Motors	0.75-375 kW
2020 or later	Scope of future updates is not yet defined		

*Minimum Efficiency Performance Standards

Efficiency classification explained

9. How are drives and motors classified?

Motors, drives, and power drive systems (PDS) are classified in energy efficiency classes. The standards used for classifications are different, as is the number of efficiency classes.

Equipment type	Standard defining classification
Motors for sinusoidal power supply	International standard IEC 60034-30-1, harmonized in Europe as EN 60034-30-1
Motors supplied from a drive	IE technical specification: IEC TS 60034-30-2
Drives and power drive systems	IEC EN 61800-9-2, based on and replacing EN 50598-2



Motor

IEC 60034-30-1
 – Motors: Fixed speed (direct-on-line DOL)
 – Classes: IE1 – IE4

IEC 60030-30-2*
 – Motors: Variable speed operation
 – Classes: IE1 – IE5



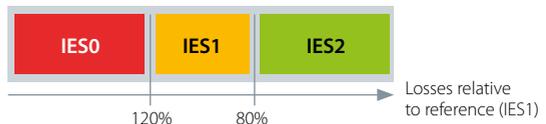
Drive

IEC61800-9-2
 – Classes: IE0 – IE2



Power drive system (PDS)

– Classes: IES0 – IES2



Energy efficiency classifications for motors, drives and power drive systems (PDS).

10. Where do I look up part load loss data? How do I determine efficiency class?

Use Danfoss ecoSmart, the efficiency calculation tool. Use Danfoss ecoSmart™ to:

- Look up part load data as defined in IEC 61800-9-2, for VLT® and VACON® drives
- Calculate efficiency class and part-load efficiency for drives and power drive systems
- Create a report documenting part load loss data and IE or IES efficiency class

How does it work? Just enter the nameplate data. Then enter any application-specific part load points. Danfoss ecoSmart calculates the efficiency class and part load data, and creates a report in pdf format which you can use as documentation.

Danfoss ecoSmart™ is available online, offline and as an app.



Danfoss ecoSmart™ app:



**Danfoss ecoSmart™
online tool:**

<http://ecosmart.danfoss.com>

Still have **questions?**

Contact your local Danfoss representative, or use the links and codes below:

Click on the links to learn more:

- Ecodesign directive: <http://drives.danfoss.com/knowledge-center/energy-efficiency-directive/#/>
- Motor independence – what's in it for you?:
<http://danfoss.ipapercms.dk/Drives/DD/Global/SalesPromotion/Articles/uk/thought-leadership/motor-independence/>



Ecodesign Directive
Visit the site and
watch the video



**Danfoss drives are compatible with
all kinds of motor technologies**
Visit the site and watch the video