

Energy-efficient drives for sustainable and economical production

- **Simotics SD motor series from Siemens is now consistently (from 2,2 until 1000 kW) available in efficiency class Super Premium Efficiency (IE4)**
- **Energy savings of up to 60% possible in a system integration**
- **Users can meet long-term efficiency standards, save energy, lower operating costs, and reduce CO₂ emissions**

Rising energy costs, stricter regulations, and the need for sustainable plant operation with a low carbon footprint: Anyone who wants to operate their production sustainably and economically will have to optimize the drive technology used in it. Siemens therefore offers a future-proof and sustainable drive portfolio. The standard version of Simotics SD motor series is offered in the efficiency class Super Premium Efficiency (IE4) across the entire power spectrum from 2.2 to 1,000 kW and for the number of poles 2, 4, as well as from 75 kW for 6 poles and from 55 kW for 8 poles. Simotics SD in IE4 thus exceeds the so-called ErP Directive 2019/1781 (energy-related products) – both the first stage, which is valid since July 2021, as well as the next, which will apply from July 2023. The directive defines the eco-design requirements for electric motors and speed control systems.

This European directive comes into force in two phases. From July 2021, it requires the efficiency class Premium Efficiency (IE3) for 2- to 8-pole electric motors from 0.75 kW to 1,000 kW. From July 2023, it requires the efficiency class Super Premium Efficiency (IE4) for 2- to 6-pole motors of medium power from 75 kW to 200 kW. In accordance with the regulation, Siemens offers the Simotics SD motor series consistently in IE4 for all affected motors. In addition, however, also for motors with an output of up to 1,000 kW as well as for 8-pole motors from 55 kW, which are still exempt from the second stage from 2023. Users of Simotics motors can thus meet the increasing requirements for energy efficiency and environmental compatibility in the long term.

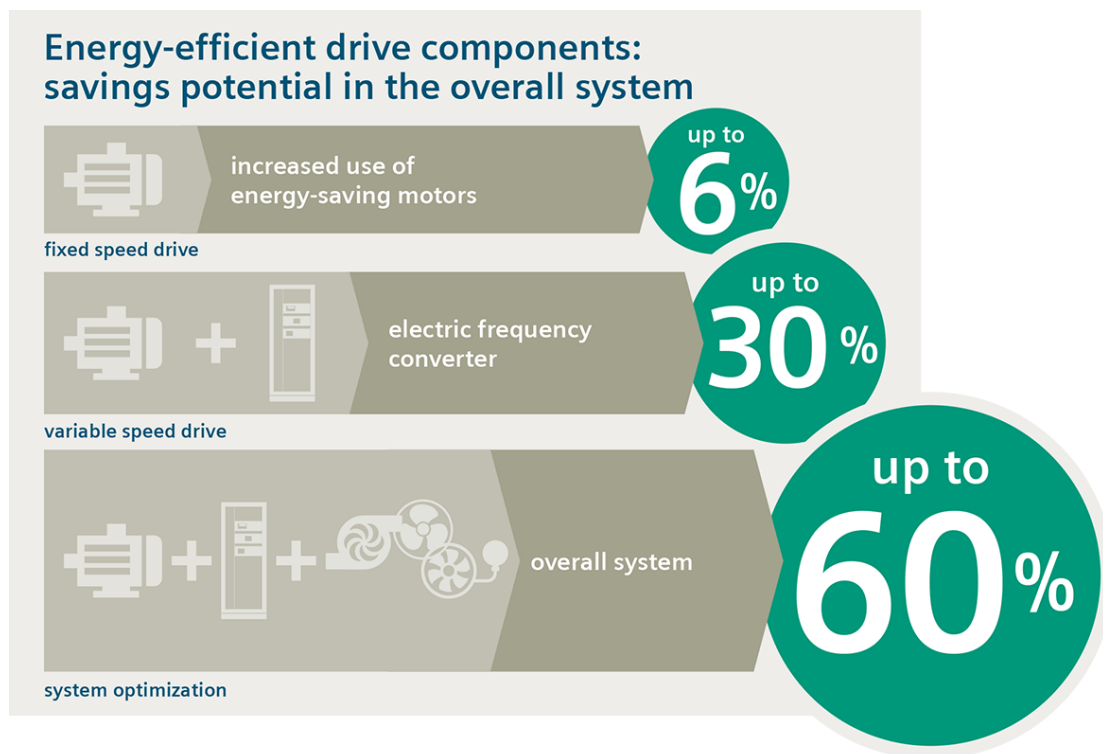
The high-efficiency motors also allow users to save energy, lower their operating costs and reduce CO₂ emissions.

The motors of the explosion proof Simotics XP series also exceed the currently required efficiency standards. They are also offered in IE3 and IE4. IE3 is standard in the increased safety (Ex eb) type of protection. This means that the requirements that come into force in 2023 and demand efficiency class High Efficiency (IE2) are also exceeded here. Another example from the Simotics portfolio is the Simotics reluctance motor. This motor is characterized by the highest efficiency levels, comparable to IE4 or even IE5, even in the partial load range. In the system with a Sinamics converter, it exceeds the minimum requirements of the highest defined system efficiency class IES2.

Highly efficient motor technologies can sustainably reduce the energy demand of industry and contribute to lowering global CO₂ emissions. After all, according to the German Electrical and Electronic Manufacturers' Association (ZVEI), around 70 percent of the energy demand in industry is required by electric motors.

Three-step system approach achieves savings of up to 60 percent

Simotics SD IE4 motors are already very energy-efficient with an efficiency of up to over 96% and are therefore also optimally designed for use directly on the grid. By using motors of the very high efficiency classes IE4 or even IE5, savings of up to 6% of electrical energy are possible. By using perfectly matched motor and converter systems for variable-speed operation of pumps, fans and compressors, energy savings of up to 30% can be achieved, and in some cases even more. However, the real key to greater energy efficiency lies in the overall system: In the interaction of all individual measures - from more efficient motors with variable-speed control, to digital system components and tools, to the use of electrically buffered energy in the motor network - savings of up to 60 percent can be achieved in the system network. Digitization will thus make a further contribution to increasing the energy efficiency of motor-driven applications in the future. By combining all three steps, maximum energy efficiency can be achieved for pump, fan, and compressor applications.



Three steps of energy savings

For further information please see www.siemens.com/drives-energy-efficiency

Contact for journalists

Katharina Lamsa

Phone: +49 172 8413539

Email: katharina.lamsa@siemens.com

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