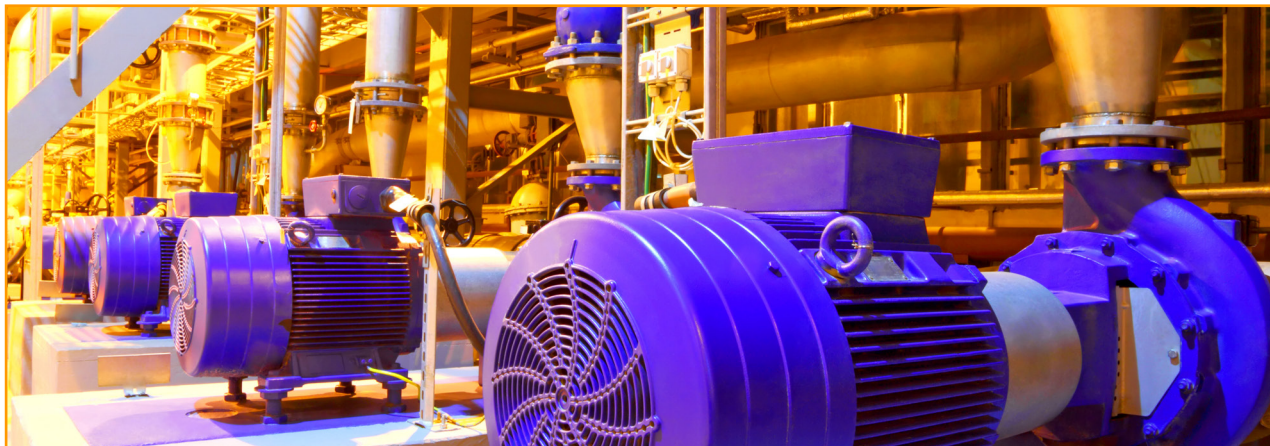


Electric Motor Systems Platform Overview



The 4E Electric Motor Systems Platform (EMSA) promotes the opportunities for energy efficiency in motor systems by disseminating best practice information worldwide. It supports the development of internationally aligned technical standards and the implementation of national policies to improve the energy performance of new and existing motor systems. This briefing gives an overview on EMSA's work.

Electric motor systems in industrial facilities, infrastructure applications and buildings that drive pumps, fans, compressors and other equipment, are responsible for **53%** of the world's total electricity consumption. New and existing technologies offer the potential to reduce the energy demand of motor systems across the global economy by 20% to 30%. The know-how to realise energy savings exists but is not widely applied.

EMSA's work focuses on the following areas:

- **International Standards.** EMSA stays up to date with the activities of the relevant International Electrotechnical Commission (IEC) committees and groups - some of which include direct participation by EMSA members - and contributes with independent research to support their work.
- **Testing.** EMSA is engaged in independent testing activities which contribute to evidence-based decisions of standards developers and policy makers. EMSA ran an international round robin testing programme for Variable Speed Drives in cooperation with IEC between 2017 and 2022 and an international round robin for air compressors between 2022 and 2025.
- **Wide Bandgap Industrial Variable Speed Drives.** EMSA in collaboration with PECTA has developed a Wide Bandgap Industrial Variable Speed Drives Research Roadmap, to address key challenges of using this new technology.
- **Demand flexibility and motor systems.** EMSA explores the potential of demand flexibility in motor systems and identifies best practices.
- **EMSA tools.** EMSA's suite of tools is steadily growing:
 - The **Motor Systems Tool**, an independent user-friendly software tool to assess the efficiency of a complete motor system.
 - The EMSA **CompressorCalc** tool to perform the stepwise calculation of air compressor isentropic efficiency, based on test results as specified in ISO 1217 Annex C and Amendment 1.
 - The **DTI-Hydracalc** tool evaluates all possible control strategies for a cyclic hydraulic installation and calculates the best solution in terms of motor & pump sizing for the best efficiency possible.

MORE INFORMATION

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For further information contact emsa@iea-4e.org.

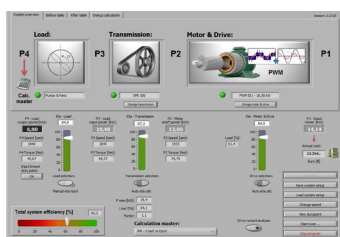
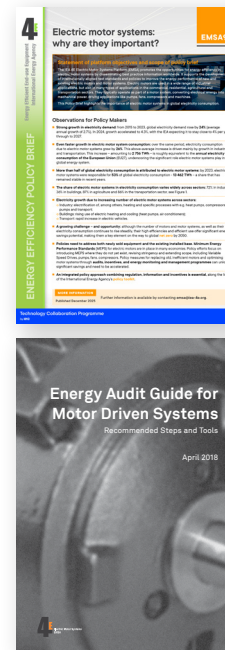
EMSA provides a platform for an in-depth technical and policy exchange between members and is a vehicle for collaborative projects. Most of EMSA's research results are made available through its publications.

EMSA publications

EMSA publishes a range of guides covering best practice policies, lessons learnt and opportunities for the international alignment of technical standards and regulations. These are complemented by practical guides and technical reports for particular (energy saving) aspects of motor systems. EMSA's **Policy Briefs** provide a short overview of key topics for policy makers.

Selected EMSA publications:

- *Round Robin for small, packaged air compressors & Guide to air compressor energy efficiency measurement method (2025)*
- *Testing industrial silicon carbide Variable Speed Drives (2025)*
- *Digitalisation in electric motor systems (2024)*
- *Classification of digitalisation technologies for electric motor driven systems (2022)*
- *Round Robin of Converter Losses (2022)*
- *Report on the EMSA survey on digitalisation in electric motor driven systems (2021)*
- *Energy Audit Guide for Motor Driven Systems (English: 2018, Turkish: 2020)*



EMSA capacity building

Among the EMSA tools, the EMSA Motor Systems Tool calculates the energy efficiency of a motor system, taking into account the motor and controls, transmission and load characteristics of the application. It is intended for engineers and others aiming to optimise existing and new machine systems.

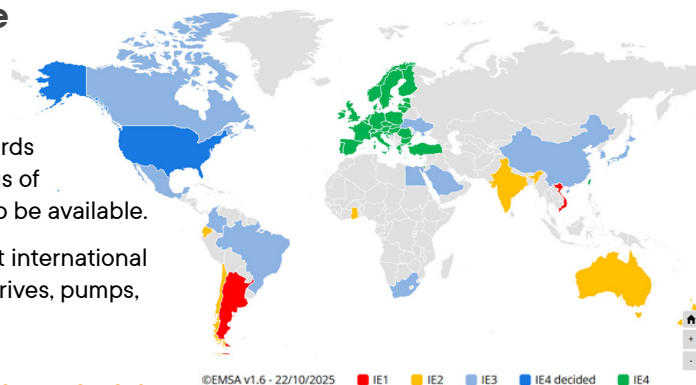
To access: www.iea-4e.org/emsa/our-work/emsa-tools/

Minimum Energy Performance Standards worldwide

EMSA published and keeps up-to-date the status of Minimum Energy Performance Standards (MEPS) for electric motors worldwide. The status of MEPS for pumps, fans and compressors will also be available.

In addition, EMSA offers an overview of relevant international standards for electric motors, Variable Speed Drives, pumps, fans and compressors.

See: www.iea-4e.org/emsa/meps/,
www.iea-4e.org/emsa/our-work/international-standards/



Who's involved?

The following eight (8) countries and one region are members of EMSA: Austria, Canada, Denmark, European Commission, Netherlands, New Zealand, Sweden, Switzerland, and the United States *.

*Member listing January 2026

Where can I access the EMSA documents?

All publicly available EMSA documents can be found on the EMSA website [here](#). **Subscribe** to the EMSA newsletter or follow EMSA on [LinkedIn](#).