

Electric motor systems – standards and policy guidelines

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**IEA Networking event Switzerland
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Agenda

1. Introduction
2. Electric Motor Systems
3. IEA 4E Electric Motor Systems Annex (EMSA)
4. Advantages of international cooperation

Impact Energy



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- **Nathalie Perucchi**
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- **Conrad U. Brunner**
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- Independent consulting
- Energy efficiency in industry
- Focus: electric motor systems
- Working internationally

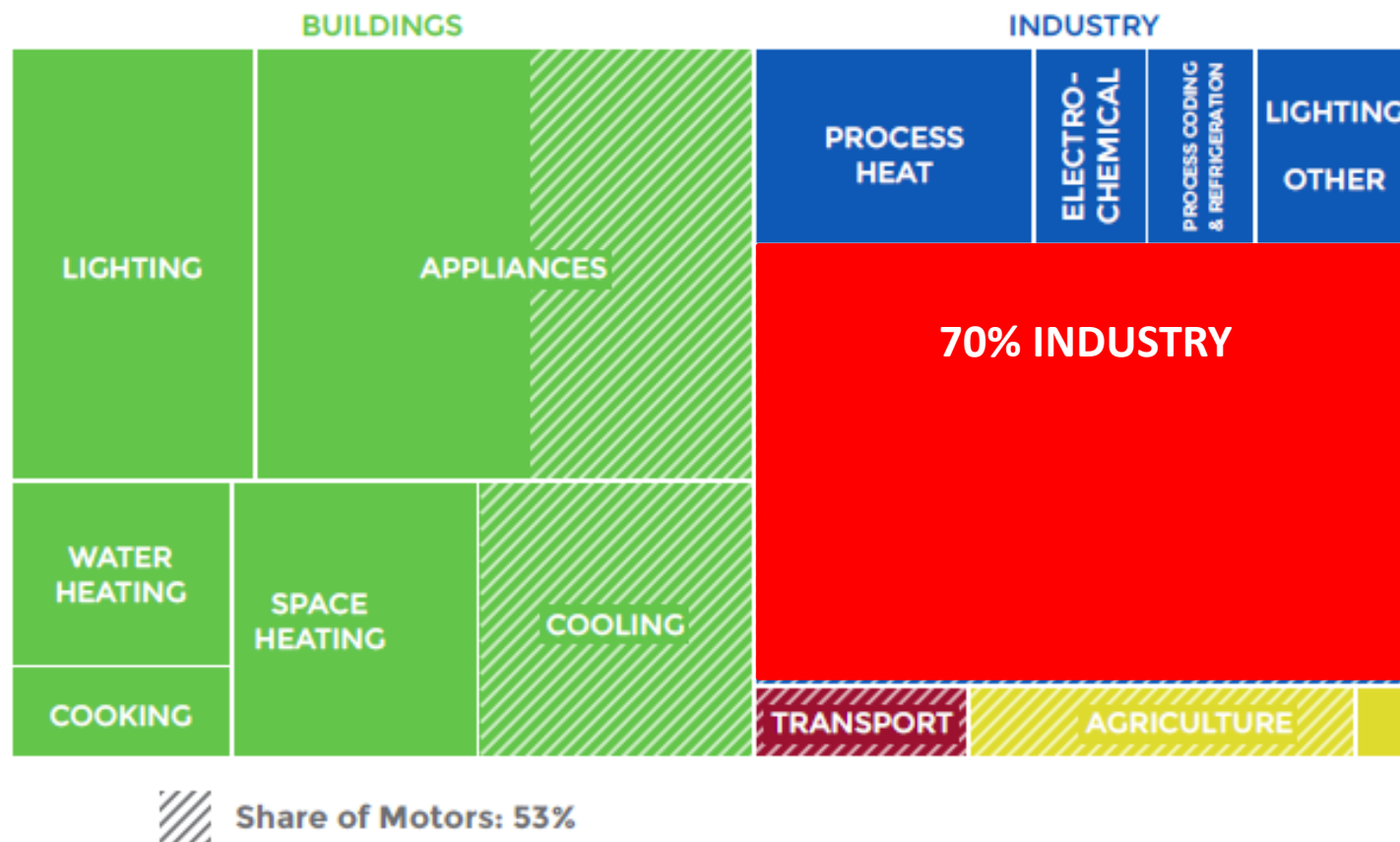


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Electric motor systems

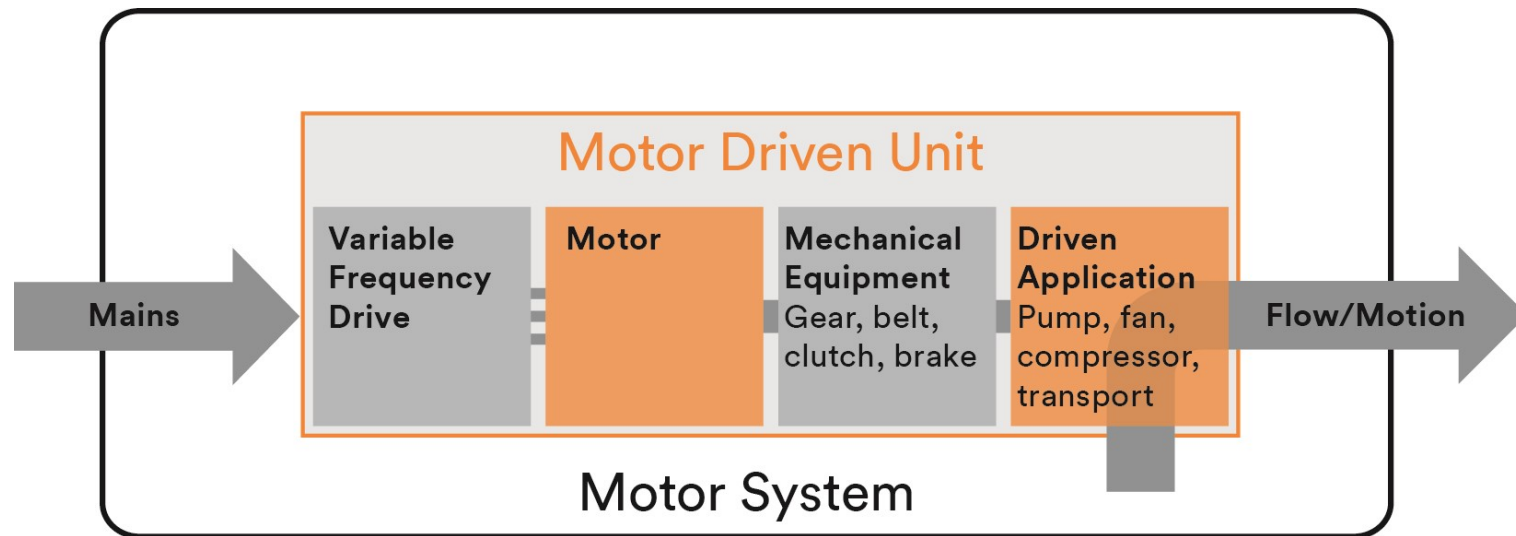
Global electricity use: 53% motors

MOTORS ACCOUNT FOR
MORE THAN HALF OF TODAY'S ELECTRICITY CONSUMPTION



Source: International Energy Agency, World Energy Outlook 2016

Systems: 20 – 30% savings



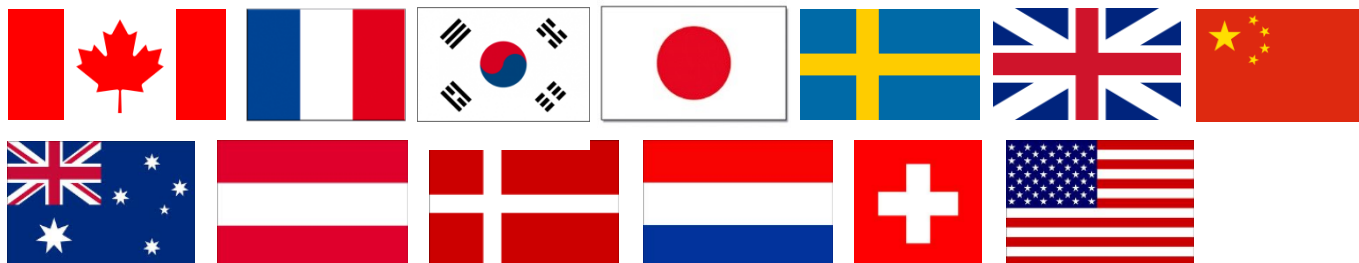
Source: IEA 4E EMSA: Policy Guidelines for Motor Driven Units (2018)

International Energy Agency 4E Electric Motor Systems Annex EMSA

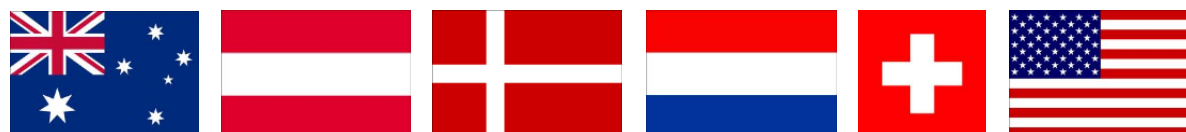
EMSA Electric Motor Systems Annex



Technical Collaboration Programme



Annex



EMSA since 2009

At a glance

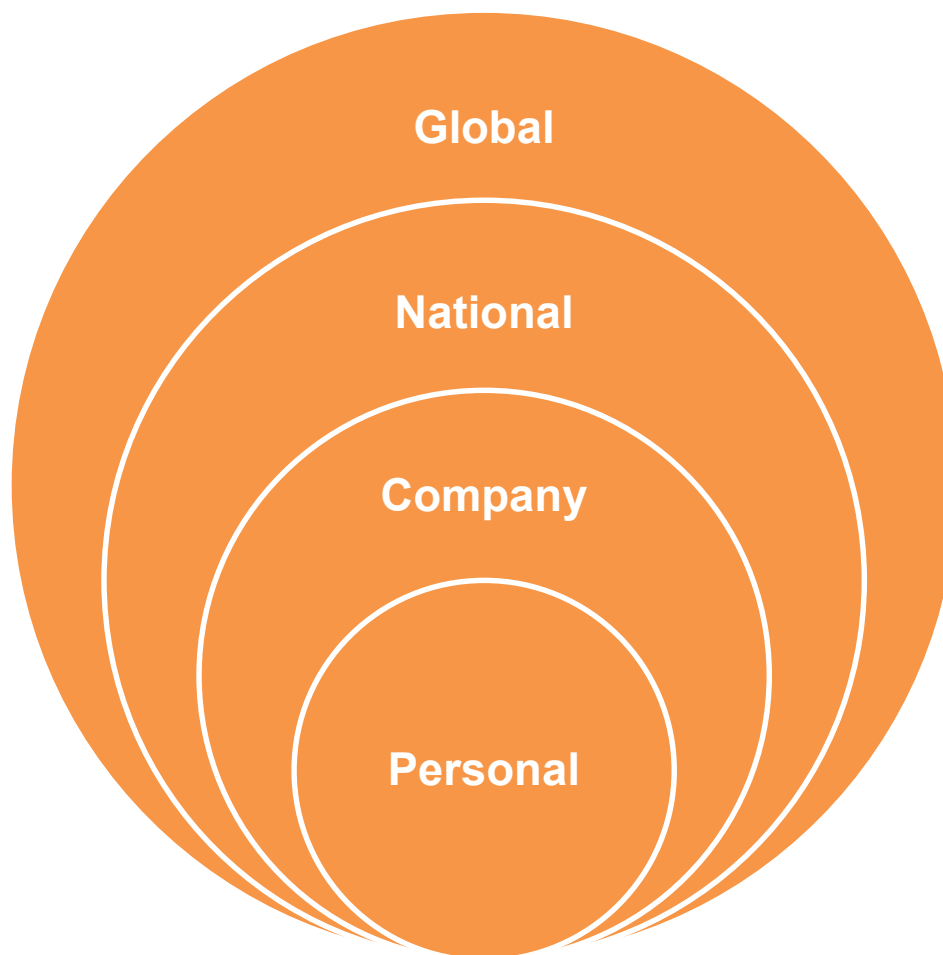
- Technical & policy platform for governments
- Members collaborate on policies stimulating the uptake of efficient motor systems
- Use synergies & avoid duplications with other initiatives

Policy Brief



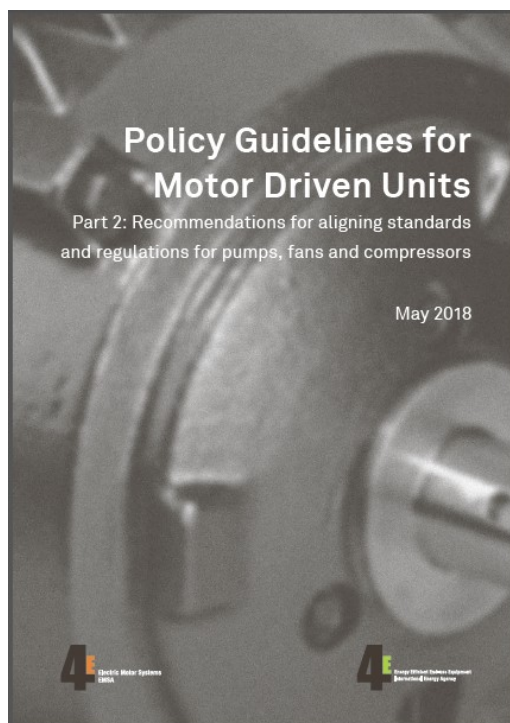
Download: www.motorsystems.org

Goal: help governments design & implement successful policies



Policy Guidelines for Motor Driven Units

- International alignment of technical standards & regulations
- Pumps, fans, compressors
- China, EU, USA



General recommendations for policy makers (To be addressed at national level)		To be addressed at IEC/ISO level	Additional energy savings
International standards	Bring the policy perspective into the standards development process by involving more (industry-)independent members.	X	High
	Align terminology and definitions used in technical standards and in regulations.	X	Medium
Product definition	Include the main components of the MDU in the product definition, i.e. the motor, the driven application and if applicable a VFD and a transmission.		High
Scope	Include in the scope the most commonly used MDUs.		High
	Include other categories in the regulation as suited to regional markets.		Medium
Test procedure	Ensure that the international test standards are adopted into local regulations without adding restrictions and/or deviations.		Medium
Metric	Use one common metric for the MDU efficiency that includes all components of the MDU and is suitable for a classification scheme.	X	High
Setting MEPS	Establish mandatory information requirements for manufacturers to declare the efficiency and performance parameters of the product/MDU.	X	Medium
	Apply minimum requirements for the MDU when it is included in another product.		Medium
	Establish MEPS tiers based on the international efficiency classification standard.	X	Medium

Notes:

- Darker orange colour means higher importance: ■ high ■ medium ■ low

- Colour scheme: savings estimates based on identified benefits, see section 4.1

- All recommendations are to be addressed at national level. Recommendations to be addressed also on IEC/ISO level are marked with 'x'

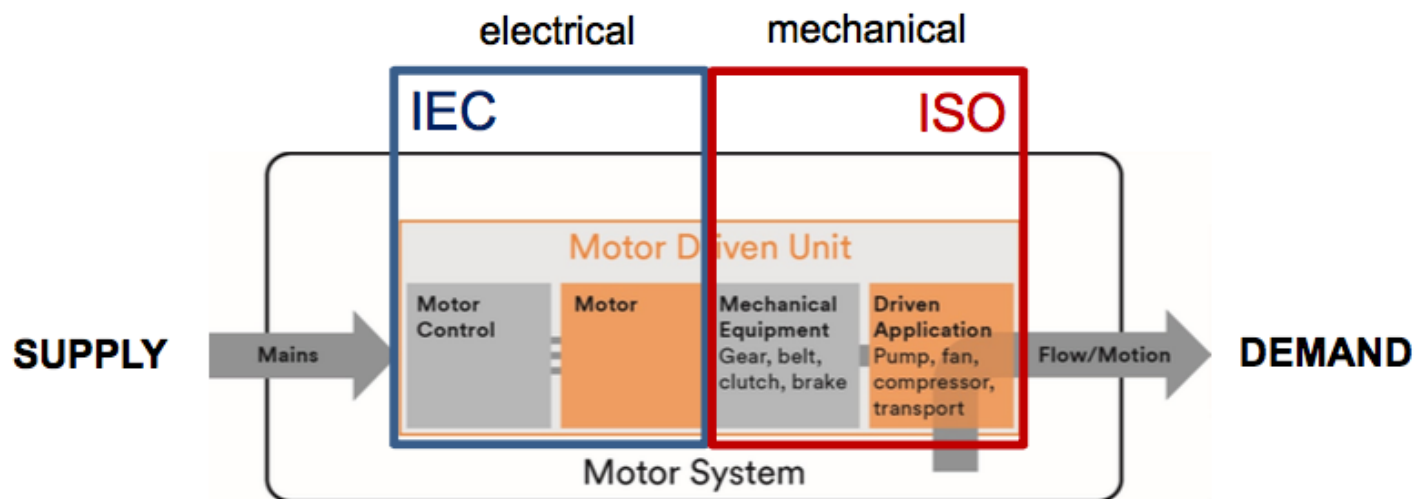
Example 1: Coordinate between IEC & ISO

System Considerations for Electric Motor Driven Units

Motor Driven Unit (MDU)

four interacting components - equal concerns

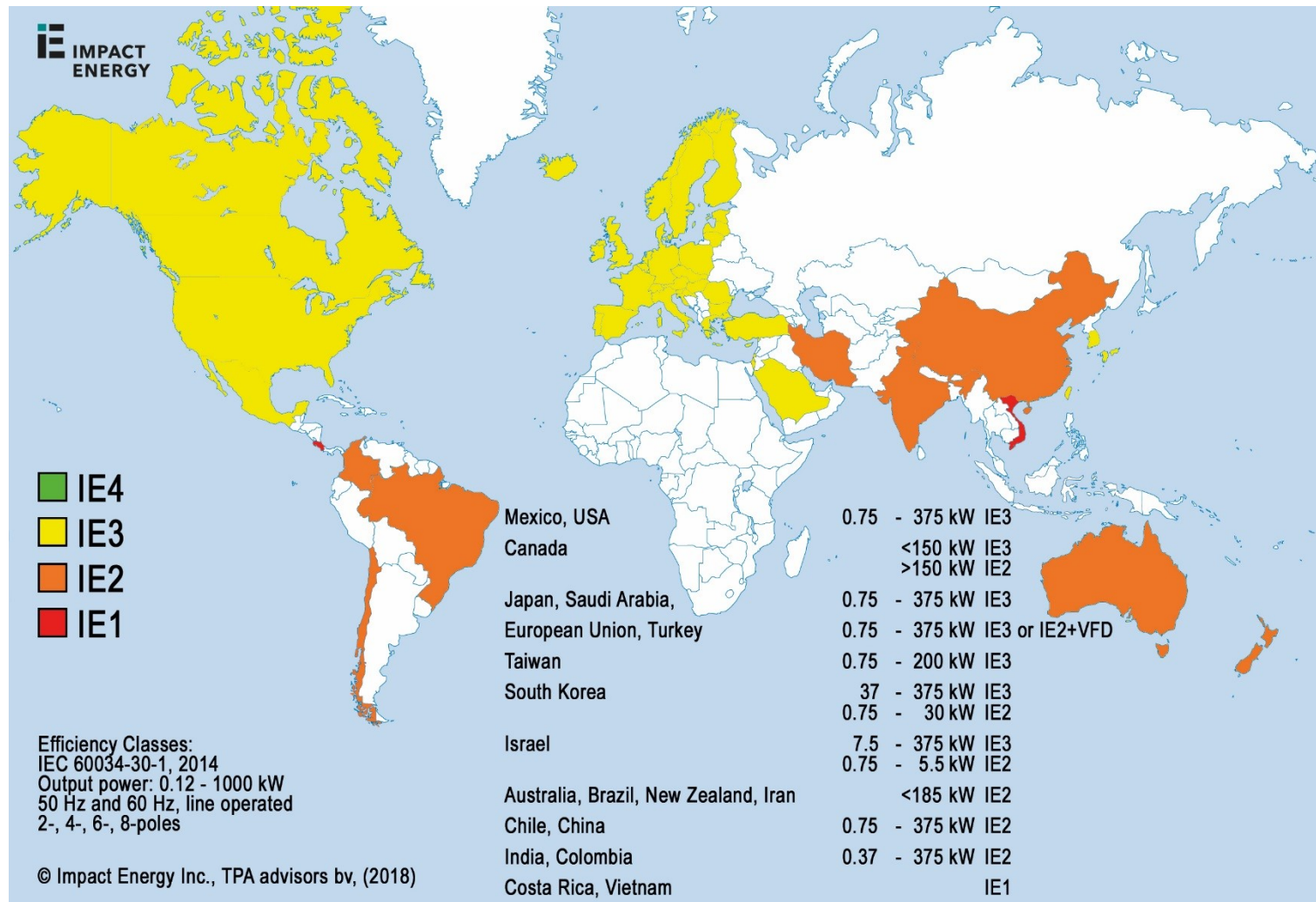
two standard organizations



Aligned international standards



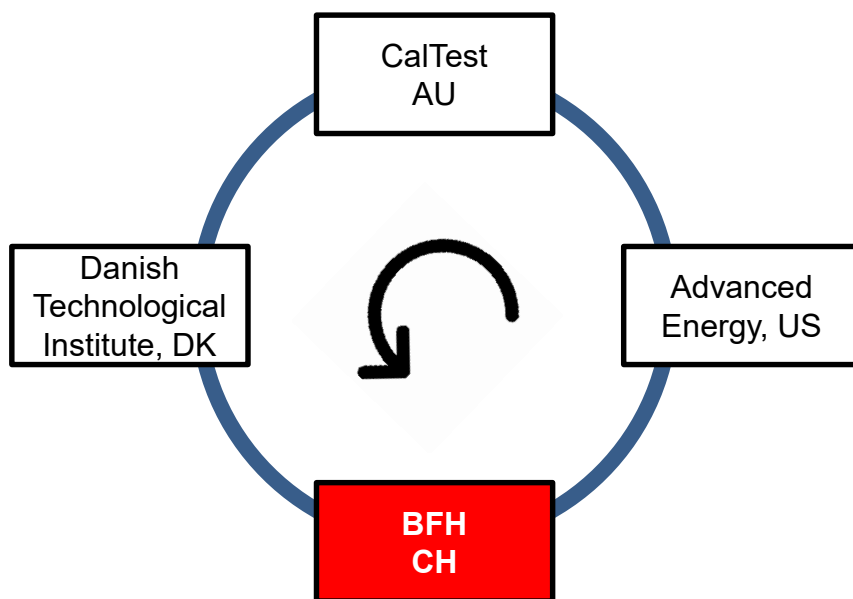
Motor Minimum Energy Performance Standards worldwide



Example 2: EMSA & IEC

Round Robin for converter losses

Phase 1:



IEC 61800-9-2 (edition 1), 2017

Review:

- **Converter losses**
 - **Efficiency classes**
 - **Testing method**
-
- **Phase 1 2018 - 2019: 4 labs**
 - **Phase 2 2019 – 2021: 8 labs (+CA, CN, DE, JP)**

[Download short overview](#)

Advantages of international cooperation

International → national

EMSA: Global Round Robin Converters
(Energy efficiency, Test method)



IEC 61800-9-2, edition 2
(Energy efficiency, Test method)



EU Ecodesign 640/2009 Revision
(EU Minimum Energy Performance Standards converters)



Swiss Energy efficiency ordinance EnEV
(Swiss Minimum Energy Performance Standards converters)

MOTOR SUMMIT 2018

International

Monday 12 Nov	Tuesday 13 Nov	Wednesday 14 Nov	Thursday 15 Nov
EMSA Internal meeting	EMSA Internal meeting	MS'18 Day 1	MS'18 Day 2
Members only English	Members only English	Open English	Open English
	am session	am session	am session
		Lunch	Lunch
pm session	Workshop: Round Robin Converters*	pm session	pm session
		MS'18 dinner	

*open for project group and interested guests, places are limited

- 14 – 15 November 2018 in Zurich, Switzerland
- 100 participants from 20 countries
- Program & registration: www.motorsummit.ch



2. Extended motor product labeling

Thank you for your attention!

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