



European Committee of Manufacturers of Electrical
Machines and Power Electronics

02nd CEMEP CONFERENCE

7th and 8th July 2022 in Milan, Italy

Frédéric Beghain
General Manager

EASA European & World Chapter

**How the motor repair and maintenance industry is working on
more sustainable motor driven systems**

EASA members are the most active and best professionals in the motors/rotating machines systems Repair and Maintenance industry in the world

www.easa.com

YEARLY 3 days CONGRESS
WITH 2.500 PARTICIPANTS
Forums, Workshops and Conventions



HELP DESK
6 TOP EXPERTS



SPECIFIC INDUSTRY
TRAINING & SUPPORT

DATABASE WITH
300.000 MOTORS



Top
Professionals
NETWORK



VALUABLE CONTENT
& KNOWLEDGE SHARING

NUMEROUS PROJECTS
& peer to peer WORKSHOPS



REPRESENTATION IN
STANDARDS BODIES

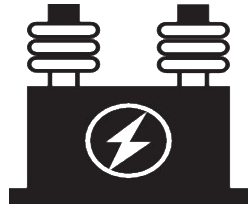


EASA Accreditation
on Energy Efficiency and Reliability

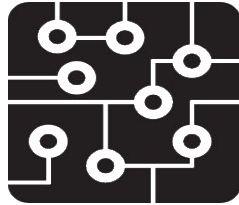
UNIQUE SUPPORT & ACTIVE NETWORK

EASA has unique powertrain domain-knowhow

We have the best insight into the installed base with 1.800 service providers in 70 countries



Static
electrical
machines



Power
electronics



Rotating
electrical
machines



Rotating
equipment

EASA members are Locals, Next to the factories, Highly Flexibles, Experts, Quick to respond, ... From our regular market surveys, EASA members are considered by their customers (End Users) as their “Trusted advisors”, they offer more and more full contracts, condition monitoring services/expertises, motor systems services, new motors, ... more of them are “Motor Performance Managers” for their customers

Forbes, April 2021: Gen Z is Emerging as the Sustainability Generation

Some facts about climate change?

Source: World in data

- 5 million deaths per year due to air pollution
- 10 biggest climate disasters 2021 costs 150 billion euros
- Argentina; 13 jan 2022 45 degrees C
- 150 million tons of plastics in the oceans
- Local disasters in Asset Management and Maintenance!



European Federation of National Maintenance Societies vzw

Interest and status?

BEMAS questionnaire okt 2021 :

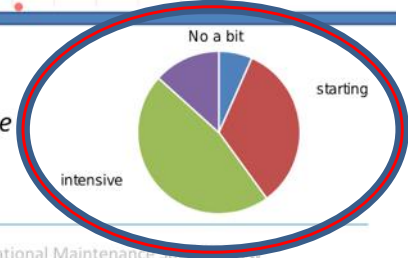
Q16 To what extent is sustainability important for the company?

Answered: 275 Skipped: 0



LinkedIn poll;

In your plant; are there any activities regarding climate change improvements?



European Federation of National Maintenance Societies vzw

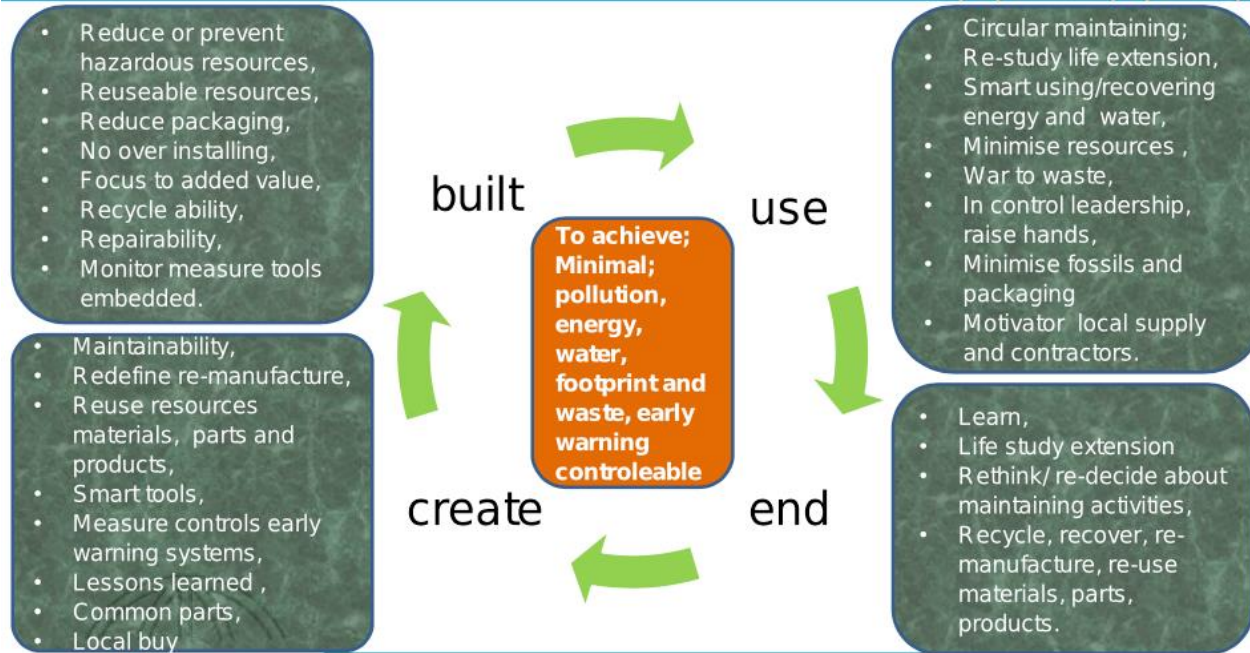
Which SDG?



Are you Aware of the UN SDG?

- a) No (43%)
- b) Yes (35%)
- c) Yes and we are actively working on it (22%)

What can be done in which asset live cycle stage?

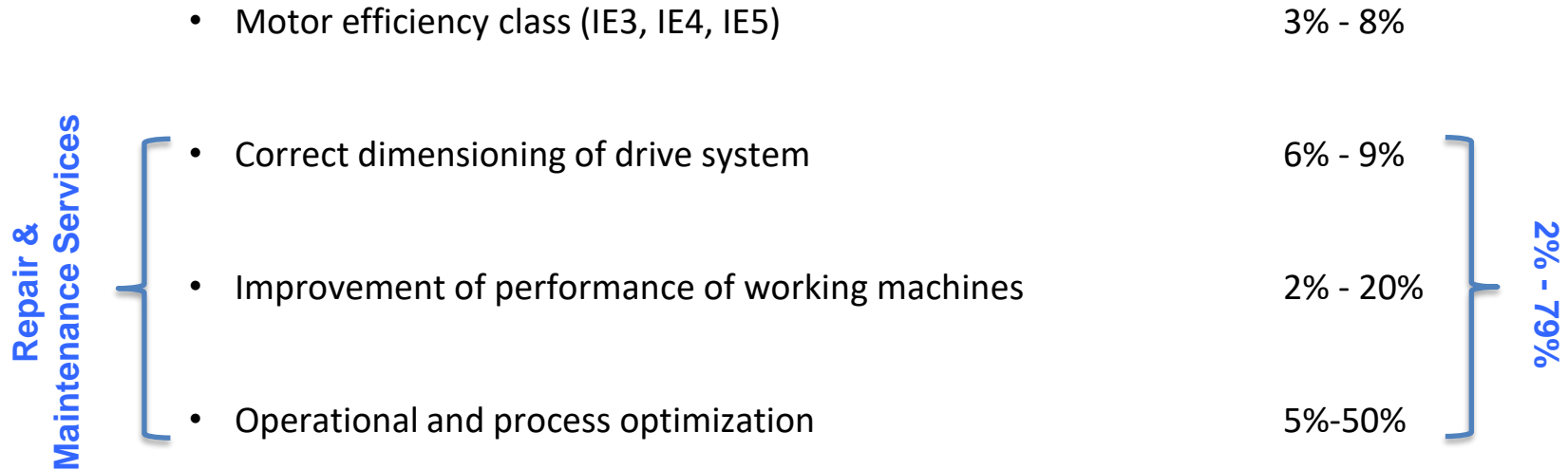


Time for our motor industry to take benefit of our visibility and to deliver more:

- The motors are the biggest Energy consumers in the world ! 70% to 80% in some industries
- In many countries in Europe the price of electricity has increased by 325%, 500%,
- European Green Deal: 36-39% energy savings by 2030
- With Industry 4.0, 5.0 (Sustainability) Lots of new technologies now available to deliver
-

➤ ***“Every one of us can help limit global warming and take care of our planet” (UN website)***

Electric motor systems: savings potential



- **Source:** “Measures for electricity saving by electric drives: market analysis in the industry”. Final report, Swiss Federal Office of Energy, December 2006

A system that works more efficiently is also more reliable

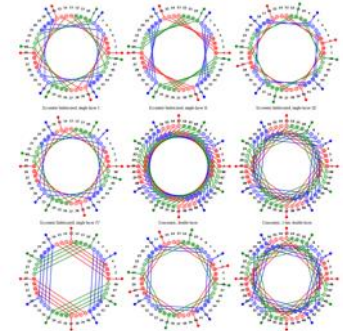


OVERVIEW

A High-Level Introduction to the Industrial Internet of Things

REMOTE CONDITION MONITORING
For Electric Motor and Drive Systems

EASA
The European Association of Safety



Maintenance of the bearings with grease quantity regulator

Anti friction bearing every 3068 operating hours add 32,7 g of grease.

6348 C3

Renew grease after 20.000 operating hours, but at the latest after 3 years.

The M37 Tool by 4E DMA

Home overview | Before data | After data | Energy calculation | 2023 Design evaluation | Evaluation of general

Load: P4 **Transmission:** P3 **Motor & Drive:** P2 **P1**

Power & Torque Efficiency CMC CMC master

Parameter	Value	Unit
P4 Load (rated power)	2.1	kW
P4 Load (max power)	2.1	kW
P4 Load (max torque)	10.5	Nm
P4 Torque (rated)	10.5	Nm
P4 Torque (max)	21.0	Nm
P3 Load (rated power)	1.0	kW
P3 Load (max power)	1.0	kW
P3 Load (max torque)	5.0	Nm
P3 Torque (rated)	5.0	Nm
P3 Torque (max)	10.0	Nm
P2 Motor & Drive (rated power)	1.0	kW
P2 Motor & Drive (max power)	1.0	kW
P2 Motor & Drive (max torque)	5.0	Nm
P2 Torque (rated)	5.0	Nm
P2 Torque (max)	10.0	Nm
P1 Input power (rated)	4.5	kW
P1 Input power (max)	4.5	kW
P1 Torque (rated)	22.5	Nm
P1 Torque (max)	45.0	Nm

Total system efficiency [%] 96.7

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EASA European & World Chapter supports the Sustainable Development Goals

During last P2P Convention 2021 in Malaga, EASA European & World Chapter members agreed on the following statement:

Our commitment to meet or exceed the UN sustainable development goals.

Why it matters? we're dedicated to creating a better world for future generations. We do this by making significant changes to our businesses that positively impact the environment.

Our values: to support our customers to make the right choice in Energy-efficiency, circular economy, respect for people and the environment in all our processes

We are thrilled to announce the launch of the #WeAreSustainable campaign

Watch the video



Join the Campaign! contact fbeghain@easa9.org

What else you can do?

Individual actions are key to take care of our planet. Your choices are important, be part of the solution!

[ACT NOW!](#)

<https://www.youtube.com/watch?v=QBPhsEQOako&t=8s>

Potential actions – Any actions count

- Substitution
 - Replacement
 - Chemical and oil handling
 - Energy efficiency
 - VFD
 - Correct control gear
 - Pump vs motor
 - Upgrade design and lifetime extension
 - Bearing
 - Paint
 - Insulation materials
 - Design and upgrade
 - Operational parameter of workshop
 - Electricity consumption
 - Use rest heat for testing and burnout
 - Field service
 - Electric cars
 - Drive training
 - Planning to reduce driving
- *Procurement*
 - Green certificate
 - Require reporting from suppliers
 - Transport CO2 vs cost
 - Traceability
 - *Recycling*
 - %
 - Handlig
 - Certificate and documentation
 - *Re-use*
 - Reuse critical parts
 - Improve design
 - *Customer*
 - Where are their input?
 - *Branding*
 - Upgrades, improvements and value added
 - Trend words, power of the words we use

Table 29: Areas of energy efficiency in electric motor systems

	Involved equipment	Improvement possibilities	
1	Electric input and conversion	Factory automation	Efficient low-voltage supply, low energy mode during standstill
		Transformation	Use efficient transformers
		Power factor compensation	Use motors with high power factor and use efficient power compensation
		Voltage 3 phases	Balanced voltage
		VFD	Properly sized, programmed and efficient VFD, use active end VFD
		Motor	Efficient, properly sized motor
2	Mechanical transformation	Throttle, damper	Avoid mechanical load management
		Clutch	Try direct drive, avoid worm gear
		Gear	Use efficient gearboxes
		Valves	Use fully open valves with wide gauge
		Transmission	Try direct drive, avoid V-belts and chains, use flat or synchronous belts
		Brake	Use efficient brake, try active braking
3	Application	Low volume	Avoid unnecessary high flow volume and mass
		Low speed	Avoid unnecessary high speed, increase pipe and duct size
		Low pressure	Avoid unnecessary pressure due to bends, use full size heat exchangers, valves, filters, etc.
4	Operation and maintenance	Shorter time	Avoid unnecessary operation time without use: factory automation with automatic load control/off
		No idle time	Avoid idle time: automatic load control/off
		Maintenance	Use regular maintenance for motor and mechanical components
		Rewinding	If not replacement: Try quality rewinding
		Replacement	Preventive maintenance and planned replacement
		Metering	Install and use system operation metering

Abbreviation: VFD = variable-frequency drive.

EASA Accreditation Program, is a transparent program, built by the industry and for the industry, based on the Best Practices to improve motor efficiency, reliability and Performances with : 23 categories, Over 70 total criteria elements



Housekeeping	Shafts	Accessories	High-potential tests
Training	Bearings (ball, roller; sleeve)	Winding removal and core integrity	Bearing insulation
Internal audits	Lubrication	Rewind data (specification)	No load tests
Identification and condition assessment	Frame and bearing housings	Stator windings, insulation system, conductors & coils	Finish and handling
Terminal leads, connectors and boxes	Squirrel cage rotors	Winding impregnation	Calibration
Cooling system	Balancing	Winding insulation and coil tests	--

Also for
IE3
Motors

150 workshops already EASA accredited in the world,
More to come. Please visit: www.easa.com/accreditation

All Motor Manufacturers should use EASA accreditation
to certify their service partners in the world
Happy to help !



Monday the 4th of July
of 2022 in one EASA
member in Germany



“Vicious” Management problem to make progress: 2 silos that do not work together

Energy Department
Energy Efficiency
At a more global level

Conferences on Energy Efficiency – Regulators, Manufacturers

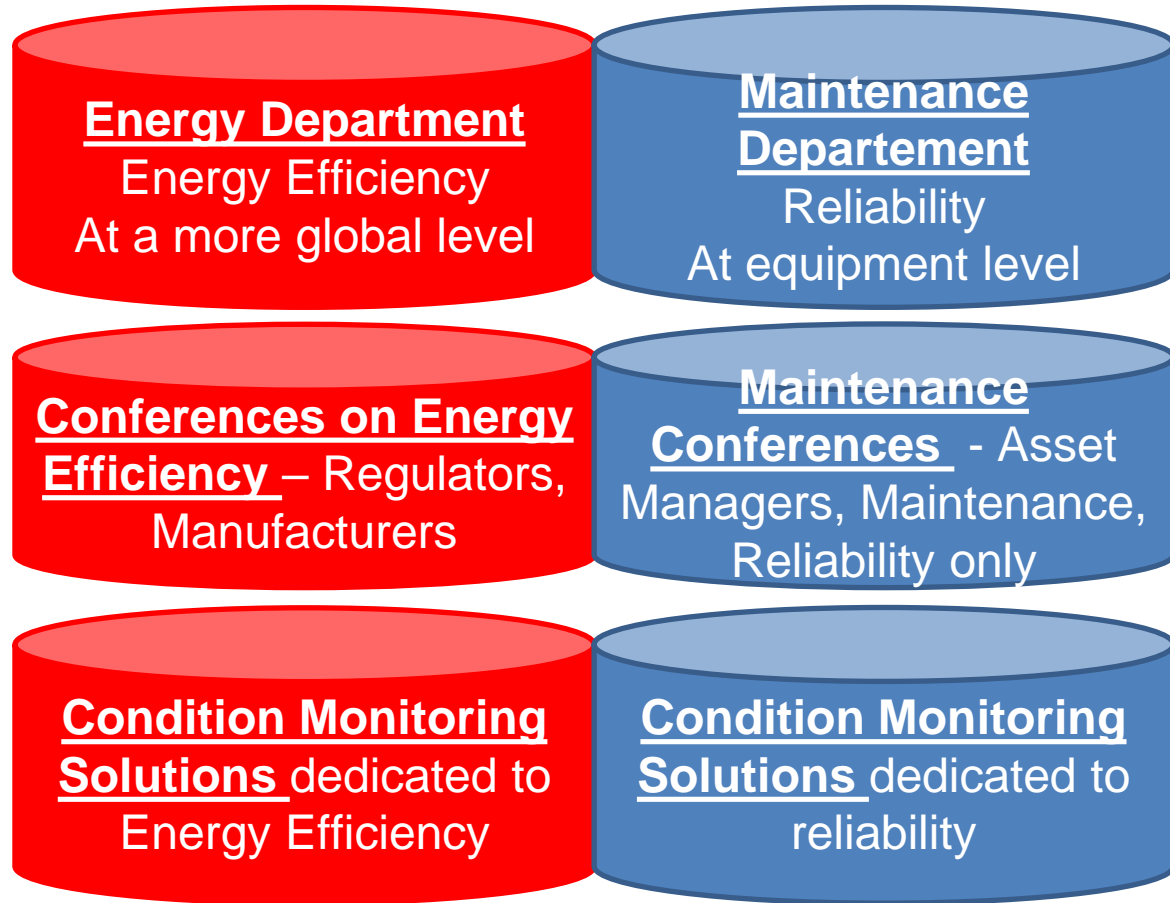
Condition Monitoring Solutions dedicated to Energy Efficiency

Maintenance Department
Reliability
At equipment level

Maintenance Conferences - Asset Managers, Maintenance, Reliability only

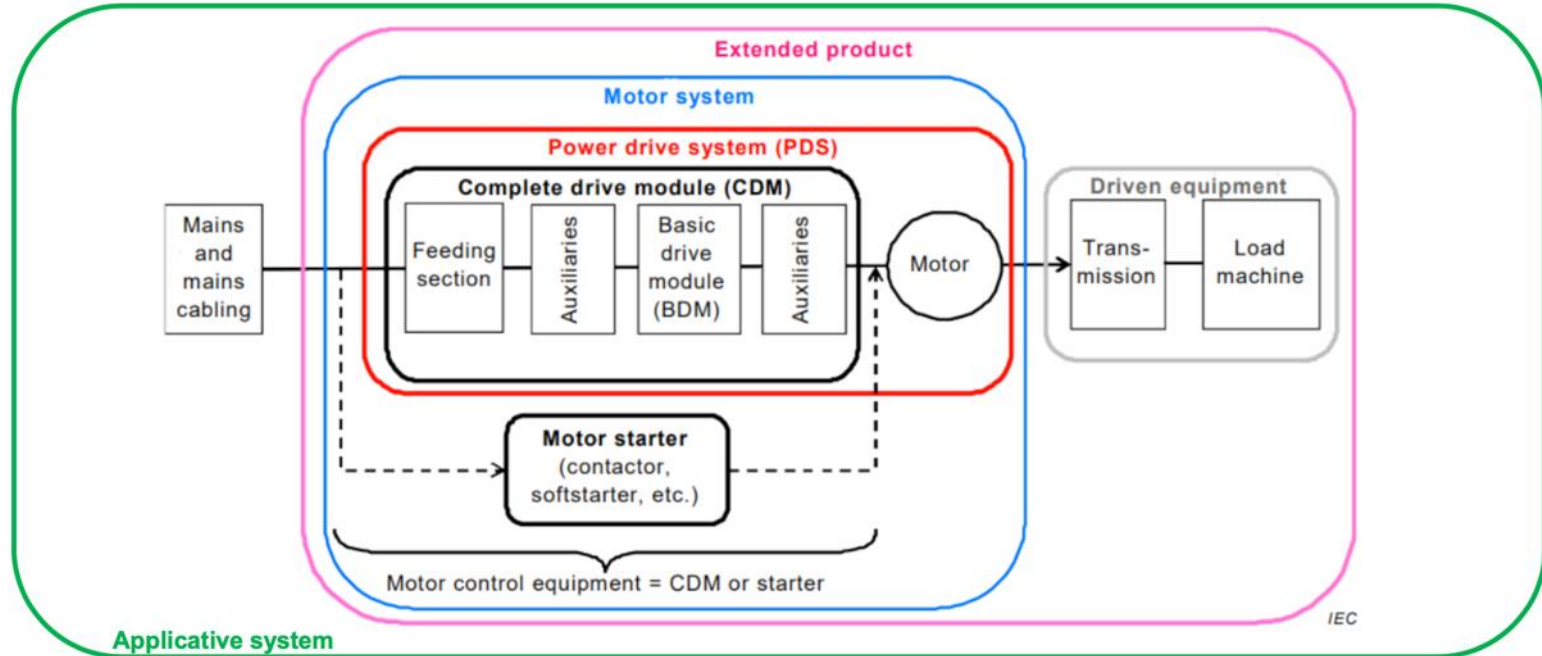
Condition Monitoring Solutions dedicated to reliability

Important – Urgent now to collaborate much more together



We must change our strategy

Stop thinking small. Move from [few %] to [15 to 40% and more]
from efficiency to savings



IEC

We must roll up our sleeves and work together to enable a real and systematic system approach

- Regulators (European Commission, DOE, countries...) : chose the right priorities, secure applicable and meaningful policies, based on well-defined standards, separate consumer and industrial products,...
- Standardization bodies : anticipate next regulations, speed-up, standardize the digital... propose standardized operations for savings ?
- Countries : funding (direct or through certificates), surveillance, education, avoid local rules,
- National Associations and sector associations : promote energy savings and system approach, "educate" and work with all actors,
- Product and Extended Product Companies : optimize their design, promote the best solution,
- System Integrators and Service companies : build awareness, create the best systems, give advices, propose improvement solutions,...



**Together, let's protect our planet
thanks to the best Motor Driven Systems**



Thanks for the attention!

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SCAN ME

