

## Special Issue

# Reliable Testing and Monitoring of Motor-Pump Drives

### Message from the Guest Editor

Pump units—comprising pumps, electric motors, and often frequency inverters—are used worldwide in water supply, HVAC, process engineering, industrial plants, energy systems, and mobile applications. Pumps consume about 10% of global electricity. Enhancing pump system efficiency can significantly reduce energy use and support sustainability through resource-saving designs and efficient operation. Reliable data on component and system condition and performance are essential during development, testing, and operation. Recent advances focus on:

- Machine learning for fault diagnosis
- Online condition monitoring
- Knowledge discovery from experimental data (KDED)
- Transient analysis
- Vibroacoustic tools
- Sensorless monitoring
- Smart sensors and IoT-based monitoring
- Accelerated degradation testing
- Efficiency evaluation of high-efficiency motors and drives
- Virtual prototyping and simulation
- Failure mode and effects analysis (FMEA)
- End-of-life (EOL) testing processes.

This Special Issue invites high-quality original contributions to advance research and dissemination via Open Access.

### Guest Editor

Prof. Dr. Sven Urschel

Department of Electrotechnical Systems of Mechatronics, University of Applied Sciences Kaiserslautern, Schoenstraße 11, 67659 Kaiserslautern, Germany

### Deadline for manuscript submissions

31 December 2025



## Machines

an Open Access Journal  
by MDPI

Impact Factor 2.5  
CiteScore 4.7



[mdpi.com/si/240725](https://mdpi.com/si/240725)

*Machines*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[machines@mdpi.com](mailto:machines@mdpi.com)

[mdpi.com/journal/  
machines](https://mdpi.com/journal/machines)





# Machines

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.5  
CiteScore 4.7



[mdpi.com/journal/  
machines](https://mdpi.com/journal/machines)



## About the Journal

### Message from the Editor-in-Chief

*Machines* is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications. Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided. There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

---

### Editor-in-Chief

Prof. Dr. Antonio J. Marques Cardoso  
CISE - Electromechatronic Systems Research Centre, University of  
Beira Interior, Calçada Fonte do Lameiro, P-6201-001 Covilhã, Portugal

---

### Author Benefits

#### High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, and other databases.

#### Journal Rank:

JCR - Q2 (Engineering, Mechanical) / CiteScore - Q1  
(Control and Optimization)

#### Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.9 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).