

## PRESS RELEASE

Aix en Provence (France) – July 6<sup>th</sup>, 2020

In the frame of our distribution agreement for MSC Cradle CFD for the French and German markets, Powersys and MSC Software Corporation are glad to announce the **launch of two webinars that will demonstrate a coupled magnetic field and thermofluid analysis using JMAG and MSC Cradle.**

Solve the problem of rising temperatures is a critical issue when trying to achieve an improvement in an electric motor's efficiency and output. In order to do that **it is important to investigate a magnetic design** that reduces the losses themselves because they are a source of heat, but it is also important **to study a thermal design** that improves heat dissipation and does not let the temperature rise. Copper/aluminium losses in the coils and iron losses in the core are the dominant heat sources, so this analysis mainly evaluates the effects of this heat. Changes in the magnet's properties due to temperature are large and its heat resistance is low, so it is necessary to design while paying careful attention to rising temperatures during operation. During operation, rated evaluations with a continuously operated constant load are run until a thermal balanced state has been reached. In addition, thermal transient evaluations, that add a thermal cycle with an intermittently operated electrical overload, are performed.

To carry out an accurate thermal design, it is necessary to understand the heat generation amount and location correctly. Therefore, it would be advantageous to calculate the losses in a magnetic field analysis simulation using the finite element method (FEM), and from there to carry out a thermal FEM analysis using the resulting loss distribution.

On July 7<sup>th</sup> and 8<sup>th</sup>, Powersys will run respectively a [webinar in French/English](#) and in [German/English](#) to show and explain how to do an electric machine cooling analysis using a coupled **Magnetic Field software, JMAG** and a **Thermo-fluid software, MSC Cradle.**

### About Powersys

Powersys is a worldwide engineering software and services company delivering global solutions for electrification to industries, research institutes and universities involved in Electrical Vehicle and Grid applications.

Our mission is to solve the electrification challenges of our customers by providing them with the right high-performance simulation software and supporting the software integration.

Powersys contributes actively to the development and success of vehicle and grid infrastructure electrification at different application levels:

- The design of embedded power systems and mechatronic systems of electric vehicles
- The multiphysics optimization of magnetic and electric embedded equipments
- The cooling of embedded power system equipments
- The integration of EV in the electrical networks
- The modeling, analysis and simulation of power system transients

To find out more: [www.powersys-solutions.com](http://www.powersys-solutions.com)

Contact: Frédérique Peyret – Marketing Manager – [marketing@powersys.fr](mailto:marketing@powersys.fr)

## About MSC Software Corporation

As a trusted partner, MSC Software helps companies improve quality, save time and reduce costs associated with design and test of manufactured products. Our products accurately and reliably predict how products will behave in the real world to help engineers design more innovative products - quickly and cost effectively.

MSC Software's technology is used by leading manufacturers for linear and nonlinear finite element analysis (FEA), acoustics, fluid-structure interaction (FSI), multi-physics, optimization, fatigue and durability, multi-body dynamics, and control systems simulation.

MSC pioneered many of the technologies that are now relied upon by industry to analyze and predict stress and strain, vibration & dynamics, acoustics, and thermal analysis in our flagship product, MSC Nastran.

MSC Software Corporation is part of Hexagon, a leading global provider of information technologies that drive productivity and quality across geospatial and industrial enterprise applications.

Hexagon's solutions integrate sensors, software, domain knowledge and customer workflows into intelligent information ecosystems that deliver actionable information. They are used in a broad range of vital industries.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at [hexagon.com](http://hexagon.com) and follow us @HexagonAB.

## About Software Cradle

Software Cradle Co., Ltd. Is an innovative provider of computational fluid dynamics (CFD) simulation software. Established in 1984, the company has pursued to offer unique, innovation focused, and highly reliable CFD solutions that enhance customers' product quality and creativity. In 2016, the company joined MSC Software Corporation (headquartered in Newport Beach California, US), the worldwide leader in the field of multidiscipline simulation. As a truly global company, Software Cradle delivers all-inclusive multi-physics solutions.

For more information about MSC Software Corporation, please visit: <http://www.mscsoftware.com>