

R&D POWER ELECTRONICS ENGINEER

Within the CleanTech sector and the future solutions reducing electricity consumption, magnetic bearings are a remarkable technology. SKF Magnetic Mechatronics is a world leader in the design, manufacturing and marketing of active magnetic bearings (AMB) and high-speed motors. This solution, applied to rotating machines is mainly used for extraction, transportation and storage of natural gas, industrial air conditioners, wastewater treatment and semiconductor manufacturing markets.

Based in Vernon (27), S2M - SKF Magnetic Mechatronics (220 employees) devotes 10% of its turnover to R&D and 5% to products industrialization. 85% of turnover is exported. Joining SKF Magnetic Mechatronics, you will join experts in power electronics, embedded electronics, software, materials engineering, mechanics, artificial intelligence, control & command and many other disciplines. All of this, in an environment international and culturally rich, with no less than 18 nationalities represented on the site.

About S2M: www.skf.com/group/products/magnetic-bearings-systems

Discover us on YouTube: <https://youtu.be/VbgoMgZTLHo>

In a context of strong growth and development, S2M is looking forward to its future:

R&D Power Electronics Engineer (W/M) – Permanent Contract.

MISSION

Magnetic bearings use magnetic forces to control and suspend a rotor in magnetic field. Within AMB-Systems, *Power Electronics* hold the key to addressing many efficiency challenges and ensure the conversion and conditioning the flow of electrical energy from the grid to the magnetic bearings.

As part of the research and development programs within *Electronics R&D* department of the S2M company, you are required to propose and design technical solutions; carry out calculations and simulations; and prescribe tests and analyse the results in order to contribute to the roadmap and ensure the client needs. Your main responsibilities:








- Design *Power Converters* for use in electrical cabinet dedicated to AMB-Systems.
- Provide technically sound project decisions in the context of modern *Power Converters*.
- Within the Electronics R&D department, contribute to the *CoDesign* environment with *Hardware* and *Software* Teams defining the *Power Metrics* to guide the optimal *Power Design*.
- Support deliverables related to the project milestones and write relevant technical reports.
- Contribute with the cross-functional team to ensure project success (such as mechatronics integration, manufacturing, testing and quality) in its TRL (Technology Readiness Level) scale.
- Participate in the realization of the FMECA with the quality service studies.
- Take lead in pilot and feasibility technical studies in partnership with research organizations (institutes, universities, etc).

REQUIRED SKILLS

- Power Electronics Engineer with 5+ years' experience as an *R&D engineer*.
- Hands on lab prototyping development including design, debugging and testing; analysis of switching waveforms and associated physical phenomena.
- Exposure to custom magnetics design, modelling and passive devices selection.
- Exposure to loss modelling and thermal management.
- Skills in designing power converters integrating wide band gap semiconductors - SiC power devices.
- Knowledge and experience on Power Resonant Converters.
- Advanced modelling skills: analytical and simulation.
- Knowledge of Power Cable modelling.
- Experience with simulation tools (Matlab Simulink, PSIM, PSPICE).
- Experience with schematic capture (Altium preferred) and Design Review process.
- Practice in PCB layout analysis: EMI optimization of conducted and radiated emissions.
- Experience in analog, digital and mix signal hardware design.
- Ability to bespoke or upgrade existing designs.
- Proactive and highly motivated to succeed, a self-starter who is driven and able to work with others effectively to GTD (*Get Things Done*).
- High attention to detail in all aspects of task execution.

WORK CONDITIONS

We offer a pleasant working environment in a captivating technological context:

-  exciting projects and multicultural organization.
-  contribute to the innovation and development roadmap.
-  working on industrial, environmental and energy efficiency issues.
-  training opportunities.
-  interesting works council and employee festivities.
-  tourist region away from traffic jams.
-  home office: 2 days per week possibility.

All information will be presented during the hiring process.

HOW TO APPLY?

We thank all applicants for their interest. Forward resumes to:

andre.deandrade@skf.com

Power Converter Team Manager.

lakdar.la.sadi-haddad@skf.com

Electrical R&D Manager.