

Mechanical Design Engineer

Interfaces:

Reporting line:	Senior Mechanical Design Engineer
Direct reports:	N/A
Interface:	Technology Development Electronics, Software, Mechanical, Production and Operations
Location:	Norwich, England

Job Brief:

The position is based in Norwich within the Technology Team, developing advanced wellbore inspection tools for the oil and gas industry. You will work closely with engineers from a range of disciplines, each bringing a variety of skills and experience.

EV's core technology centres around video capture in extreme downhole environments, including temperatures exceeding 200°C and pressures above 20,000 psi. This includes the integration and refinement of advanced optical systems operating under harsh thermal conditions.

As a Mechanical Design Engineer, you will collaborate with the design, production, and operations teams—providing support while gaining the experience necessary to advance your career.

The Technology Team operates in a casual but fast-paced environment where no two days are the same. As part of a small, multi-skilled team, you'll have the opportunity to broaden your expertise with the full support of your colleagues. A willingness to adapt and expand your skill set is key to success in this role.

Role and Responsibilities:

- Take ownership of the design and development of our range of Downhole Logging Tools using 3D CAD, contributing innovative and practical engineering solutions.
- Lead prototype assembly, testing, and validation activities, ensuring products meet performance and quality standards.
- Collaborate with suppliers to optimise manufacturing processes, ensure design-for-manufacture principles are applied, and manage the creation Bills of Materials (BOMs).
- Support optical system design and simulation for imaging tools, ensuring alignment with mechanical constraints and environmental conditions.
- Perform thermal design and simulation to assess and manage heat transfer in high-temperature environments.
- Develop and maintain high-quality documentation including assembly, servicing, and operating manuals, in collaboration with relevant departments.
- Maintain regular dialogue with Engineering and Project Managers to prioritise workload, monitor progress, and report risks or opportunities for improvement.
- Ensure full compliance with all workplace quality, health, safety, environmental, and security standards, laws, and regulations.

Required Skills/Competencies:

Technical Skills:

- Proficiency in 3D CAD software for detailed design and assembly modelling. required

- Strong understanding of mechanical engineering principles, including materials science, stress analysis and thermal management. required
- Experience in thermal simulation (e.g., using ANSYS, COMSOL, or equivalent) to model and mitigate high-temperature effects on mechanical and electronic components. required
- Familiarity with optical design and simulation tools (e.g., Photopia, Zemax, Code V, LightTools) to support the integration of lenses, LEDs, sensors, and optical housings. desirable
- Experience with finite element analysis (FEA) and other simulation tools to validate designs under thermal, mechanical, and pressure loads. required
- Knowledge of manufacturing processes (machining, casting, additive manufacturing, welding, etc.) and design for manufacturability and assembly (DFMA). required
- Familiarity with product lifecycle management (PLM) tools and revision control. required

Problem-Solving and Analytical Skills:

- Strong problem-solving skills with the ability to diagnose issues and develop practical, innovative solutions.
- Analytical mindset to assess design trade-offs in terms of performance, cost, reliability, and manufacturability.
- Attention to detail to ensure accuracy and quality in all deliverables.

Project and Time Management:

- Ability to plan, prioritise, and manage workload to meet project deadlines and milestones.
- Capacity to work independently and take ownership of tasks, while escalating issues as needed.

Communication and Teamwork:

- Excellent written and verbal communication skills, able to prepare clear technical reports, documentation, and present ideas effectively.
- Comfortable working collaboratively in multidisciplinary teams.
- Ability to liaise with suppliers, manufacturers, and clients professionally.

Adaptability and Continuous Learning:

- Willingness to learn new tools, technologies, and methods to stay current with industry developments.
- Flexibility to adapt to a fast-paced, dynamic work environment where priorities can change quickly.
- Strong commitment to quality, safety, and regulatory compliance.

Experience and Qualifications:

- Bachelor's degree in Mechanical Engineering or a closely related engineering discipline (BEng, BSc).
- Typically, 2 to 5 years of relevant mechanical engineering experience, preferably in sectors such as oil and gas, energy, manufacturing, or instrumentation.