Job Description.

HORIBA MIRA is a global provider of automotive engineering, research and test services, with 75 years of experience in developing some of the world's most iconic vehicles.

Working in collaboration with vehicle manufacturers and suppliers around the world, we provide comprehensive support ranging from technology development and individual product tests through to full-vehicle design, development and build programmes.

Whilst traditionally known for our vehicle test services – including over 40 major facilities and 100km of Proving Ground – HORIBA MIRA is so much more than this. Over the last ten years, we have invested heavily in the evolution of our engineering capability and in the development of MIRA Technology Park, Europe's leading mobility R&D location for developing the latest automotive technology.

The unique combination of engineering expertise, advanced testing facilities and prime location of MIRA Technology Park in the heart of the UK automotive industry, enables customers to develop and validate their technology, or vehicle, in one place.

The Electromobility Systems department in the Propulsion & Electromobility group delivers a range of advanced solutions for the development of energy efficient electrified vehicles. In particular, the full Vehicle Thermal Management system is critical for the effective development of electric and hybrid vehicles. This role will enhance the Propulsion & Electromobility capability group across both Engineering & Technology and Test Services divisions.

Title of Job:	Project Engineer - Thermal Energy Management			
Department:	445 – Electromobility Systems			
Grade:	4P			
Date Required:	ASAP			
Salary Range:	Competitive			
Number Required:	1			
Location:	HORIBA MIRA, Nuneaton, UK			
Contract Type:	**Permanent:**	Yes	**Contractor:**	No
Responsible To:	Manager – Electromobility Systems			
Subordinates:	None			

Main Purpose of Job

- Support the 1D modelling of full Vehicle Thermal Management Systems (VTMS) for electric and fuel cell vehicles
- Conduct 3D/CFD modelling and simulation for Aero-Thermal attribute development
- Implement thermal control logic
- Support the energy efficiency optimisation by means of numerical co-simulations coupling thermal management and powertrain systems
- Support thermal systems and vehicle climatic test activities
- Contribute to the delivery of Internal Innovation Projects and collaborative R&D projects

Key Functions

- To undertake model-based design activities for vehicle thermal management systems with associated control strategies

- Develop, correlate and validate 1-D models of HVAC/refrigerant Systems, Battery Thermal Management Systems, Fuel Cell Systems and xEVs' Powertrain Cooling systems using GT-Suite/Simscape
- Carry out CFD analyses of vehicle exterior aerodynamics and cabin/component interior airflow
- Carry out 3D thermal simulations of battery systems and passenger cabin including thermal comfort
- Develop numerical couplings of Vehicle and Powertrain Longitudinal models with Thermal Management Models
- Develop models of thermal controls in the Matlab/Simulink environment
- Support the development of battery thermal management
- Support the model-based design of full VTMS and aero-thermal vehicle level attributes
- Support the analysis of holistic vehicle level energy balance and the implementation of optimisation strategies
- Support and deliver thermal systems testing as well as thermal energy vehicle level testing
- Ensure the processing and the analysis of simulation/test data
- Prepare technical reports and presentations outlining results in system performance and efficiency optimisation

Other Functions:

- Adhere to the teams' best practices and compliance to standard local procedures
- Conforming to QHSE standards
- Delivering project activities within time, budget and to quality
- Work with team colleagues to unify tools and resources
- Seek to maximise productivity and chargeable time
- Escalate to the relevant project leads any risks of project overspend

Essential Qualifications	Preferred Qualifications
• Good first degree in an appropriate Subject, most probably Mechanical Engineering, Thermal Engineering, Electro-mechanical Engineering. Significant relevant professional experience will be taken into consideration	• Higher degree post-graduate qualification in a related engineering discipline (relevant MSc or Meng, PhD) • Chartered Engineer and membership of an appropriate institution

Essential Experience	Preferred Experience
• Typically 5 in automotive thermal management • At least 5 years' experience using CFD analysis on automotive application (ideally ANSYS Fluent or OpenFOAM) • Experience in carrying out and analysing the results of simulations of external aerodynamics and under-bonnet flow, interior cabin flows • Experience with applying CFD modelling and analysis techniques to battery thermal modelling, e.g. air cooled packs, hydraulic component characterisation, e.g. of cooling plates and their optimisation • Experience and knowledge in meshing and mesh quality, derivation and application of appropriate boundary conditions, and analytical techniques of simulation results	• Experience using TaiTherm for 3D thermal analysis • 1-D Modelling and Simulation of Thermal Systems using AMESim • Cabin Thermal comfort assessment and modelling • Thermal rig-based development tests • Thermal Management Control strategy definition • Vehicle and Powertrain Longitudinal Modelling • Knowledge of Matlab/Simulink modelling • ICE thermal Modelling • Fuel cell thermal modelling • Vehicle climatic tests • Fuel Cell system thermal modelling • Refrigerant system development tests • Control development and modelling

• 1-D Modelling and Simulation using GT-Suite and Simscape, in particular HVAC and cooling systems • Strong Thermodynamics background • Thermal System development using a V-Cycle approach • Good understanding of automotive Thermal Energy Management and Vehicle Energy Efficiency • Solid report writing skills	

What is the candidate likely to be doing now?

- Undertaking a similar at an OEM, Tier-One or engineering consultancy
- 1-D modelling of Powertrain cooling systems including traction batteries
- 1-D thermal modelling of passenger cabins
- 1-D modelling of HVAC systems
- Model correlation to test data
- Simulation data analysis
- Model based design and development of full Vehicle Thermal Management Systems
- 3D/CFD simulation and analysis for Aero-Thermal Vehicle Attribute developments, Battery Thermal Management

Other information

The candidate should:

- Have excellent communication skills, both written and verbal, able to convey technical content to team members with differing technical ability
- Excellent communication and interpersonal skills - ability to communicate appropriately at all levels and recognise the values of all team members, regardless of level
- Be a self-starter and able to execute designated tasks accurately and within timing and budget constraints
- Have well-developed analytical skills – rigorous but pragmatic
- An approachable and motivational character
- The ability to contribute positively to a team working environment
- A positive, can-do attitude with an ability to work well under pressure
- Be willing to travel in the UK and overseas for short term visit
- Be prepared to work flexibly
- Have a full UK driving license