

Case Study: Ritherdon

Developing a Passively Safe Roadside Cabinet

The challenge

Ritherdon, a family owned SME, and the UK's largest domestic steel meter box supplier contacted the University, seeking assistance for simulation of vehicle impact on their roadside metal cabinets.

Ritherdon's aim was to develop a novel passively safe roadside metal cabinet that would shear away near its base on impact with a vehicle, thereby significantly reducing the risk of serious injury to any passengers.

The University of Manchester solution

The Business Engagement Support Team identified academic expertise in Professor Yong Wang within the School of Mechanical, Aerospace and Civil Engineering, and supported the initiation of a consultancy project. The modelling work undertaken on the safety parameters of the stainless steel electrical enclosures led to the design of the first passively safe roadside cabinet.

Due to the unique nature of the cabinet and its function, Ritherdon have progressed with a design patent (pending) with support provided by The University of Manchester Intellectual Property (UMIP).

Following this initial consultancy arrangement, the relationship between The University of Manchester and Ritherdon has grown, and with support by the Knowledge Exchange Team, an Innovate UK Knowledge Transfer Partnership (KTP) has been successfully awarded.

The 24 month KTP aims to embed advanced mechanical and structural engineering principles into the business, supporting the development of new products with increased technology as well as enabling Ritherdon to have complete understanding of their current product range, including relevant standards and performance requirements, so that Ritherdon can expand their current market share and deliver continued and long-term business success.



We found working within the University an efficient process. When we first got in touch, the Business Engagement Team identified all the required expertise and got a team together to work with us. The project was underway within a matter of weeks.

*Ben Ritherdon, MD,
Ritherdon and Company Ltd.*



RITHERDON

Ritherdon was established in 1895, and have been manufacturing a variety of electrical enclosures for many decades, supplying to a range of industries that includes the electricity supply industry, highways and traffic management and house building & maintenance.

www.ritherdon.co.uk



I was very impressed by Ritherdon's keen interest in research and their clear vision of developing better products through embedding academic knowledge of structural and mechanical engineering. The collaboration has given me an excellent opportunity to apply my academic expertise to support a local SME and make a real impact.



*Yong Wang,
Professor of Structural and Fire
Engineering, School of Mechanical,
Aerospace and Civil Engineering,
University of Manchester*

The benefits

Ritherdon originally had the requirement to develop the Passively Safe Cabinet for a customer for use on a road scheme in Scotland where it will be used for housing road-side environmental monitoring equipment. The expertise of Prof Wang was key in the development and ensuring the cabinet is passively safe, and helps to reduce the risk of serious injury during a road traffic accident.

They are also looking at other potential sites where the Passively Safe Equipment Cabinet could be used to reduce collision injuries on high speed roads, and ultimately looking to become the market leader in the sector.

"When we started designing the Passively Safe Cabinet we realised that we needed greater mechanical expertise to model both the behaviour of the cabinet and its shearing mechanism in a collision. Having such a well-respected research University just down the road from us at Ritherdon & Co, and The University of Manchester also being my alma mater, it made perfect sense to ring up for some advice." Says Ben Ritherdon.

"We found working within the University an efficient process. When we first got in touch, Saq Rasul from the Business Engagement Team identified all the required expertise and got a team together to work with us. The project was underway within a matter of weeks."

The relationship with the University has grown and recently been strengthened with the award of a Knowledge Transfer Partnership of £157,493.

Having the engineering expertise of the KTP associate along with the academic support of Professor Yong Wang, and University facilities, will bring many benefits to the Company and its customers, including:

- Optimised product design to improve performance
- The ability to provide comprehensive technical information on our products to customers, providing new market opportunities
- Advanced technical input into the design of the Company's increasingly innovative and expanding range of products.

The KTP project will identify and support new research opportunities for Professor Wang that will lead to new design and manufacturing tools to help manufacturers with little or no formal knowledge of structural and mechanical engineering, to develop optimised and competitive products that have structural and mechanical performance requirements.