

## Interface - The knowledge connection for business Supports exploration of new technologies

Ian Russell Engineering is an Alloa-based company exploring the development of new techniques to make the internal combustion engine more efficient. This pioneering technology has many advantages including the ability to lower fuel emissions, thereby making engines more cost effective to run.

By adopting the operating principles of traditional combustion engines, the methodology has the potential to change the way car and motorcycle engines will run in the future.

Ian Russell, Managing Director of the eponymous firm takes up the story.

"Take a motorcycle engine as an example. In a normal engine, the combustion pressure tries to bend the crankshaft and the resultant 'force' starts up the engine. This pressure is set directly in the middle of the crankshaft.

However, if we change the position of where this pressure is applied to the crankshaft to a position of around 35 degrees after this middle point or top dead centre, then our

research suggests an engine will turn at a lower RPM to achieve the same power, using less fuel accordingly and the engine idling speed will be reduced from 1000 rpm to one-tenth of that figure."

Early indications suggest that this may play a significant part in dramatically cutting fuel consumption and pollution, amongst many other benefits to motor manufacturing and the environment.

Interface - The knowledge connection for business has played a pivotal role in helping Ian Russell Engineering reach this critical stage of its development.

It has put the company in touch with Dr. Stuart McIlwain, a lecturer in the Department of Design and Manufacturing Engineering at Bell College, Hamilton, a specialist in thermodynamics and internal combustion engineering.



Ian Russell Engineering Ltd is exploring the development of new techniques to make the internal combustion engine more efficient.

*"Companies like Ian Russell Engineering are to be applauded for seeking help through Interface. They are much better off seeking advice from colleges or universities as we have a completely impartial background."*

Dr McIlwain, Lecturer in the Department of Design and Manufacturing Engineering at Bell College.

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Dr McIlwain is now assisting Ian Russell Engineering with some detailed consultancy work – the thermal dynamic modeling and the process for building and eventually the design and testing of the engine.

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Dr McIlwain sees tremendous value in Ian Russell Engineering’s potential. He states, “Companies like Ian Russell Engineering are to be applauded for seeking help



## About Interface - The knowledge connection for business

There is a wealth of world-class technology, skills and research facilities available within Scotland’s universities and research institutes.

With established links to thousands of world-class leading experts, Interface finds and introduces companies to the perfect academic partner.

Interface overcomes the challenge facing companies in understanding what is available or who to contact

in academia, for R&D or expertise capabilities by matching relevant expertise to specific business requirements.

**Collaborating with academic partners brings significant business benefits:**

- Develop innovative new products, services and processes
- Improve performance using technological advances
- Increase competitive advantage in key markets

- Enhance profitability in existing and new markets

Many companies don’t know that innovative solutions to help their business grow can be developed with academic assistance.

Interface is here to help make the right connections for businesses.

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