

6th International Low Carbon Racing Conference at Autosport International

Concourse Suites 1 and 2 – opposite Hall 8
NEC, Birmingham
Wednesday 11 January 2012

Engineering Showcase



Aeristech
www.aeristech.co.uk

Aeristech Full Electric Turbocharger Technology
Aeristech Control and Turbocharging Technologies deliver a fundamental shift in thinking that offers a powerful tool for engine downsizing. Our technology separates conventional turbochargers into their two key elements: generator and compressor. Our world's fastest and fastest accelerating permanent magnet motors allow independent control of the input and output elements and match exactly the right amount of correctly charged air throughout the engine rev range, even at low revs and slow speeds that provides excellent vehicle responsiveness.



Claytex Services
www.claytex.com

Claytex is the exclusive distributor of Dymola multi-domain modelling and simulation software in the UK, Belgium, Luxembourg, The Netherlands, Ireland and South Africa. Claytex have been working with Dymola and Modelica since 1999 on a wide range of projects for some of the world's most respected Automotive, Motorsport/F1, Energy and Aerospace organisations.



Cosworth Group
www.cosworth.com

Cosworth provides high performance technologies to a diverse range of global industries including aerospace, defence, automotive and sport. In motorsport the advanced data acquisition, chassis and powertrain control technologies developed by Cosworth are used by champions in major race series around the world including; Formula One, IndyCar, Endurance Racing, World Rallying and MotoGP.



Delta Motorsport

www.delta-motorsport.com

Delta Motorsport is a motorsport and automotive engineering business that brings together innovative design, creative production solutions and skilled project management. Delta has a background deeply rooted in high performance engineering and having honed its engineering skills in this ultra-competitive industry has applied the fundamental motorsport principles of minimising weight, optimising aerodynamics and maximising mechanical efficiency to an all-new battery electric car that delivers a phenomenal performance and handling experience.



Drayson Racing Technologies (DRT)

www.draysonracingtechnologies.com

Drayson Racing Technologies (DRT) is a research & development business based in the heart of the UK's world-leading motorsport industry. Founded by Lord Paul Drayson, DRT pioneers the development of green technologies in the challenging environment of motor sport. In July 2011, Lola Group and DRT announced a major partnership to build an electric-powered LMP (Le Mans Prototype) racing car.



FARO UK

www.faro.com

FARO develops and markets computer-aided coordinate measurement systems and software worldwide. Portable measurement equipment from FARO permits high-precision 3D measurements and comparisons of parts and complete systems within production and quality assurance processes. They are used for inspecting components, assemblies, production planning, and inventory documentation, as well as for the investigation and reconstruction of accident and historical sites.



flybridsystems

Flybrid Systems

www.flybridsystems.com

Flybrid Systems LLP is the developer an entirely mechanical high-speed flywheel based Kinetic Energy Recovery System (KERS) that is powerful, small and light. The device has a long life with no performance degradation and is easy to operate making it suitable for all forms of motorsport. A Flybrid system powered the first ever hybrid car to race at Le Mans in June 2011.



Lola Group

www.lolacars.com

Lola is the oldest and the most successful manufacturer of race cars. A constantly-evolving organisation which incorporates an in-house end-to-end composite capability, a technical facility housing a 50 % scale windtunnel and 7-post test rig, both of which are commercially available.

Having successfully diversified in the late 1990's, Lola Group is also now a leading technology provider to the aerospace, defence, communications, renewables and automotive industries. From concept engineering through to research and development, Lola is a one-stop facility that multi national companies come to for a variety of hi-tech engineering solutions

Since being founded in 1958 Lola continue to succeed in technical innovation and excellence with the disciplines demanded by commercial customers. Lola also respects and encourages its rich history with the Lola Heritage division.



Lola-Drayson B12/69EV all-electric sports car

In July 2011, Lola Group and Drayson Racing Technologies announced a major partnership to build an electric-powered LMP (Le Mans Prototype) racing car.

With over 850 horsepower, the Lola-Drayson B12/69EV all-electric sports car aims to be the fastest electric-powered racecar to lap a circuit. Showcasing technology such as wireless charging, recyclable body panels, composite battery power, moveable aerodynamics and electrical regenerative damping, the B12/69EV will be one of the most advanced zero emission competition cars. Drayson Racing Technologies has designed the drivetrain and has managed the integration of the multiple new technologies on the car.



Millers Oils

www.millersoils.co.uk

Award winning high performance lubricants and fuel treatments for motorsport competitors and enthusiasts. Millers Oils formulations are highly recommended by drivers, engine builders and race teams competing at many levels of motorsport. We're working with them, developing technically advanced products to boost performance, provide maximum protection and prolong component life. Innovation, for us, is a race without a finish line.



Multimatic Engineering

www.multimatic.com

Multimatic is a global leader in the engineering, development and manufacture of automotive suspension systems and components, supplying OEMs and leading motorsports teams with a full suite of development services and innovative products.

With facilities in Canada, the U.S.A. and the U.K., Multimatic's Engineering Services Group specializes in providing design, analysis, prototyping and validation capabilities to the global automotive, aerospace and consumer products industries.

**NORTHAMPTONSHIRE
ENTERPRISE PARTNERSHIP**

Northamptonshire Enterprise Partnership

www.northamptonshireenterprise.ltd.uk

Northamptonshire is at the centre of the UK's world leading High Performance Technologies cluster. The cluster includes world leading design and manufacture of performance race cars and engines; the development and application of light weight materials and composites; emerging low carbon engineering in vehicles, renewable energy and sustainable construction; and a range of industry focused business and creative services.

Northamptonshire Enterprise Partnership is the county's economic development company. Led by business and funded by Northamptonshire County Council, our objective is to attract new business investment and support and achieve business growth in Northamptonshire.

Electric Corby is a key part of the growth and regeneration plans which aim to make Corby, Northamptonshire one of the most environmentally and economically sustainable areas in the country. The starting point is 5,100 new homes in Priors Hall Park where zero/low energy homes with electric vehicles will soon be available. Electric Corby is working with Plugged in Places on electric charging infrastructure, OLEV on home energy management research and on two EU FP7 bids to test electric commercial vehicles and new hydrogen and electric fuelling options with European partners.

Frost EV

Frost EV Systems Limited is an engineering company that specialises in electric and hybrid vehicle systems and integration. We provide engineering services and parts to support both prototype and production vehicle programmes at all stages of development including feasibility studies, design, integration and testing.



OXFORD BROOKES UNIVERSITY

OXFORD BROOKES UNIVERSITY
**Department of Mechanical Engineering and
Mathematical Sciences**
Sustainable Vehicle Engineering Centre (SVEC)
<http://mems.brookes.ac.uk/research/mechanical-engineering/svec>

Oxford Brookes occupies a strong position in automotive and motorsports engineering. The Sustainable Vehicle Engineering Centre (SVEC) is driving innovation to create effective, affordable, energy-and resource-efficient transport. SVEC deals with: forecasting, strategy and the implications of legislation; life-cycle analysis and end-of-life; development of sustainable technologies; electric vehicle introduction and e-mobility research.



Ricardo
www.ricardo.com/motorsport


Ricardo is a global, world-class, multi-industry consultancy for engineering, technology, project innovation and strategy with over 1600 professional engineers, consultants and staff.

Ricardo Motorsport is a group within the company that provides services and products to leading teams internationally. The fundamental culture of Ricardo Motorsport is the cost-effective application of high technology to achieve winning solutions in the shortest time.



Warwick Manufacturing Group
www.wmg.warwick.ac.uk

Founded in 1965 Warwick has been a unique and uniquely successful British university combining a “can-do” entrepreneurial spirit with a commitment to absolute academic excellence. Professor Nigel Thrift, Warwick’s 5th Vice-Chancellor, was appointed in 2006 to transform the University from a leading university within the UK to become one of the world’s top 50 universities by 2015. WVG was established by Professor Lord Kumar Bhattacharyya in 1980 in order to reinvigorate UK manufacturing and improve competitiveness through the application of value-adding innovation and cutting edge research. Professor Lord Bhattacharyya has published extensively in the field of manufacturing and is a highly influential advisor to many organisations around the world. WVG now employs over 210 staff with a further 230 associates occupying four buildings at the University of Warwick. WVG is a world-renowned centre of excellence operating an international programme of research, education and knowledge transfer amounting to £100m a year. WVG’s work is

	<p>based on finding innovative solutions to challenging real world problems with partnerships across a wide range of business sectors including construction, pharmaceuticals, defence systems, healthcare, financial and ICT.</p> <p>The WorldF3rst Sustainable Formula 3 racing car achieved global acclaim, being named in Time Magazine's Top 50 inventions of 2009. It pioneered the use of sustainable materials and recycled carbon fibre in high performance applications. Leading research at WMG in partnership with industry (Lola cars Ltd, ELG carbon fibre ltd, Umeco composites, and composites evolution) has now established the static and dynamic properties of a number of sustainable composites. This knowledge has enabled composite body components to be manufactured for the Lola/Drayson racing B12/69 EV Le Mans prototype.</p>
	<p>Williams Hybrid Power www.williamshybridpower.com</p> <p>Williams Hybrid Power Ltd (WHP) has developed a novel, patented electromechanical composite flywheel system that provides a high-power, cost-effective and environmentally friendly solution for mobile or stationary energy recovery and storage.</p> <p>The company's first application of the technology was in the highly competitive and extremely harsh environment of Formula One racing. Through development of a flywheel for Williams F1's Kinetic Energy Recovery System, WHP has proved its world-class engineering capabilities in the composite flywheel field as well as radically improving aspects of the technology in the process.</p> <p>Building on the Formula One project, the company is now making the technology available to meet the high-power energy storage needs in a variety of applications including hybrid passenger vehicles, hybrid buses, construction & off-highway vehicles, electric trains, rapid transit systems, intermittent renewable energy generation and smart grid infrastructure.</p>