



# Engine extravaganza!

Engine Expo 2009, held at Messe Stuttgart from June 16-18, once again proved to be the must-attend show for powertrain engineers from around the globe, as the event was hailed a success by exhibitors and visitors alike.

■ Traveling from Japan was Shoichi Ishida, chief engineer for Denso, who commented, “The show is good and the forum is brilliant. There’s a lot to take in and much to see.” Nissan Europe’s manager of diesel calibration, Felix Gimenez, agreed with Ishida: “It’s a very interesting show. The location is really, really good. I’m a first-time visitor and I’ve enjoyed discovering new powertrain technologies. A lot of companies are represented here.”

And those manning the stands were equally impressed with the Expo, despite the tough economic conditions. Bill Wrinn, marketing manager at the Scuderi Group, noted the quality

of the visitors: “The show has been awesome. It’s been really busy. The flow of traffic between automotive companies, senior engineers, some partners of ours, and even investors has been great. This Expo has been really impressive.”

Exhibiting at Engine Expo for the first time was Magna Powertrain. “Last year we were here as visitors and we were impressed with the show, which is why we decided to participate as an exhibitor,” said the company’s product manager for engine engineering, Ronald Penzinger. “Engine Expo gives us a good opportunity to display our products. The feedback from visitors has been great, and we



Engine Expo crowds flocked to the Scuderi booth to see the concept split-cycle engine



**Aumet Oy's 4/2-stroke diesel has very good levels of efficiency at part loads**

have gained some good business contacts."

The Scuderia Group used this year's Engine Expo event to take the covers off the company's first proof-of-concept prototype for its split-cycle engine. Scuderia's innovative powertrain divides the four strokes of a combustion cycle over two paired cylinders, with one intake/compression cylinder and another power/exhaust cylinder. The powertrain fires after top dead center, which creates cleaner combustion in one cylinder and compressed air in another. In addition to the vast improvement in emissions output, the engine is also capable of generating far more torque than conventional diesel and gasoline units.

Another new engine attracting huge crowds was Aumet Oy's 4/2-stroke car diesel powertrain. Tests have already shown that Aumet's innovative unit, called the Z Engine, has very good levels of efficiency at part loads,



## OPEN TECHNOLOGY FORUM

Complementing Engine Expo's high level of technical content was the three-day Open Technology Forum, and attendees agreed that there were several standout presentations. On Day 1, Ramakrishna Donakonda, product line manager for Robert Bosch India, attracted crowds with his paper entitled: Low-cost ECU Strategies for Emerging Markets. On Day 2, a presentation called The Aston Martin One-77 V12 Engine by Dr Brian Fitzsimons, chief engineer at Aston Martin, raised much discussion with visitors. Another well-attended presentation on Day 2 was made by Dr Sunghwan Cho, director at Hyundai Motor Company. He focused on Efficient and Powerful Small Engines: The Key to Low CO<sub>2</sub> and Driving Fun. On the third and final day of the event, visitors were keen to listen to David Rolett, principle engineer at Prodrive, who presented a paper entitled Development and Application of a Flywheel Hybrid.

**"It's a very interesting show. The location is really, really good. I'm a first-time visitor and I've enjoyed discovering new powertrain technologies."**

**FELIX GIMENEZ, NISSAN EUROPE'S MANAGER OF DIESEL CALIBRATION**



**Visitors got the chance to inspect many new powertrain technologies at this year's Engine Expo, including this calibrated unit by Revolve that generates 470Nm of torque**

and NOx levels are minimal. Meanwhile, latest simulations with a special modification of Diesel RK have shown that it is possible to have an HCCI combustion in the Z engine at all loads. "This is because in the Z engine the TDC temperature lowers when the load increases," said a company spokesperson. "At part load the temperature is around 800°C and at full load (BMEP of 25) it is around 700°C. The ignition is triggered around 10° ATDC with an ignition injection to the hot isolated combustion chamber in the middle of the piston. This activates the cool flame and thus the Z engine uses the cool flame as an amplifier to trigger the hot flame."

Bowman used this year's

Engine Expo to announce the release of its latest generation 2.2 Electric Turbo-Compounding system, which is suitable for heavy commercial vehicle installation. Comprising a 60kW turbo-generator, lubrication, and cooling system with a power electronic module, the systems are tuned to the specific engine model so that the maximum amount of exhaust energy can be extracted to generate electrical power, which is then fed back into the vehicle's electrical architecture. According to Bowman, several OEMs are currently testing the technology with huge success.

Engine Expo will return to Messe Stuttgart in 2010. Be sure to keep checking this website for the confirmed dates. **ETI**