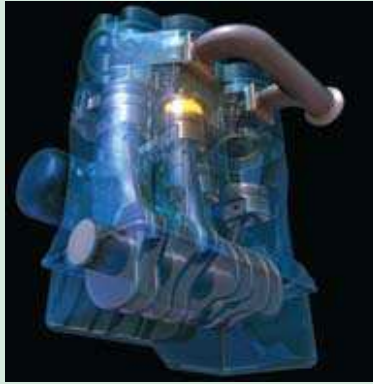


AEI 2008 Tech Awards

Split-cycle engine

Conceived by a team of fluid and thermodynamic engineers, **Scuderi** split-cycle and air-hybrid engine technology is designed to improve performance, efficiency, and environmental impact by focusing on engine core technology. According to a recent full-load study, a single-stage, turbo-charged, split-cycle engine under full-load conditions is expected to achieve greater torque and power as well as 25 to 50% improved fuel economy over conventional and hybrid vehicles while emitting 80% less NOx. Other features include component similarity, resulting in minimal manufacturing and tooling costs. Scuderi has teamed with **Bosch** to develop air-hybrid engine prototypes; Bosch will define the technical requirements and supply component specifications, such as the fuel-injection system.

For more information, visit booth 1337



Cooled EGR

Valeo develops exhaust gas recirculation (EGR) and charge air cooling systems as part of its strategy for safe, comfortable, and environmentally friendly vehicles. The systems were designed in a single modular solution through a total engine thermal-management approach, such as the UltimateCooling system. Components manage exhaust gas flow and, in turn, the inlet air temperature. The primary function of cooled EGR systems has been to reduce the formation of NOx in diesel engines. Cooled EGR also has been applied to gasoline engines to improve fuel economy by allowing higher compression ratios, and a 5 to 7% reduction in CO₂ emissions has been achieved.

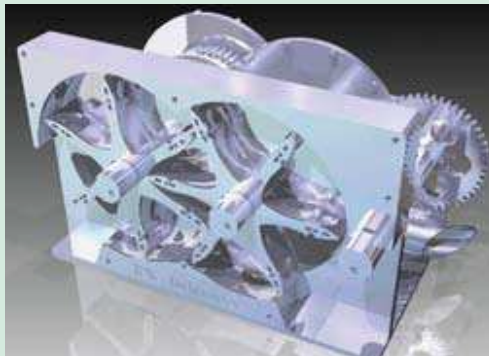
For more information, visit booth 2645



Intermeshing differential rotors

The intermeshing differential rotor technology from **IDR Technology** can be used for internal-combustion engines to provide a better power-to-mass ratio, improved efficiency, lower manufacturing cost, and higher durability. The technology features two rotors that intermesh but are always at different angular velocities. For part of a revolution, they will have a different average angular velocity ratio between them. The rotors never stop during the combustion process but only vary with regard to average angular velocity. The rotors take turns driving the engine. The rotor with the biggest leverage on the other rotor will drive the engine for part of a revolution (both rotors will turn). Then the other rotor will have the advantage and turn both rotors. Both rotors do this six times per engine revolution. There are 12 combustions per engine revolution. Combustion occurs every time the rotors exchange angular velocity ratios.

For more information, visit booth 2560



Legform impactor

A biofidelic leg impactor from **Transport Research Laboratory** was designed for use in testing and developing contact sensor technology employed in active-safety pedestrian systems. The SensorLeg is said to be the most human-like leg available, according to the company, and will enable vehicle and component developers to test and evaluate pop-up bonnet systems designed to reduce injury in the event of a pedestrian impact. It is modeled on a 50th-percentile male and simulates human muscle shape, response, and fracture. The company states that SensorLeg is the first tool designed to specifically test active-safety pedestrian systems, which are continuing to be developed worldwide to meet regulations and future trends.

For more information, visit booth 214



Brake pedal sensor

PCB Piezotronics offers a series of pedal-effort load cells for automotive test applications, including brake development, driveability, vehicle handling, and safety testing. Designed to measure the force required to operate a vehicle's primary brake, clutch, or floor-mounted



emergency brake pedals, the Series 1515 brake pedal effort sensor with integral cable features a 1.19 in (30 mm) overall height, improved installation and removal, and temperature compensation of 30 to 130°F (-1 to +54°C). The sensor also offers high overload protection and a loading surface that rejects off-axis loading errors. Sensors are offered in a range of capacities and provide resolution, linearity, and repeatability in both static and dynamic loading events.

For more information, visit booth 501