

BRIGHT SPOTS

Fresh Ideas Growing



Through this newsletter, Delphi Technologies hopes to give you some insights into Delphi's innovative technologies and how we are partnering to put them to use in both automotive and non-automotive markets around the world. We are actively seeking technology partners and would welcome the opportunity to talk with you.

Delphi Technologies, Inc. (DTI) is a wholly-owned subsidiary of **Delphi Corporation**. Our mission is to create, manage, protect, and leverage Delphi's intellectual property.

The DTI venture creation and licensing teams work with Delphi divisions to select technologies that have the highest potential and proactively pursues opportunities with external partners in licensing and venture creation.

Hot just got hotter — High Temp Igniter

Problem: Igniters used in typical 400°C furnace/stove applications and their electrical connections cannot withstand soak temperatures above 400°C. Certain applications require igniters to withstand operating conditions exceeding even this temperature.

Solution: Delphi has created a high temperature igniter capable of withstanding temperatures well above 400°C by re-engineering the igniter with new materials and new manufacturing processes resulting in increased hot soak temperature and life expectancy. The improved igniter has a 900°C temperature capability and has been shown to withstand over 5,000 hours of operation under thermal cycling conditions. We

believe Delphi has taken igniter technology to a performance level that hasn't been available in the past.

Delphi's new igniter has potential application for commercial Class 8 trucks, automotive, aerospace, the military, high temperature furnaces, turbine engines, ceramic engines, corn pellet furnaces for home heating, and industrially-sized coal and diesel furnaces and turbines.

To learn more about the High Temp igniter, [contact the Delphi licensing executive](#).

ADVANTAGES OF THE HIGH TEMP IGNITER

- Longer life • Reduced maintenance
- High soak temperatures
- Less complicated implementation



DTI has identified technologies in business transition and is interested in discussing the sale of these intellectual properties with interested individuals. These include:

- Audio Systems - Mechanical
- AM-FM Radio Technologies
- Wireless Data Services Including RDS
- Electronic Cooling
- Head Up Display
- Nano-Epoxy Underfill
- Navigation/GPS
- Audio System Playback Functions
- RF Antenna
- SDARS Satellite Broadcast
- VF/LCD Display

[For more information on patents for sale, contact the licensing executive.](#)

To learn more about Delphi Technologies, Inc. or any aspect of our operation, call (248) 813-8065, or visit www.delphi.com/dti.

A flash of genius — Ion Sense Glow Plug

Engine manufacturers and vehicle OEMs continue to strive for optimum performance for advanced diesel powertrain applications. New applications require ever increasing control of combustion measured at the individual cylinder. One prevalent approach for advanced diesel systems is to employ a pressure sensor to assess the performance. However, pressure sensors are expensive and this typically results in only one cylinder being monitored. The data collected in the single cylinder is assessed as a proxy for overall engine performance.

Delphi's integrated Ion Sense Glow Plug creates an affordable solution allowing individual cylinder measurement and control of combustion. With the Delphi design, an Ion Sensing Glow Plug is introduced to each cylinder to monitor and optimize engine performance. The sensor collects information and shares it with an engine control unit for analysis. Based on unique Delphi algorithms, the control unit then modifies combustion by influencing injection, pilot ignition, main ignition, start of combustion and optimized EGR performance for each cylinder. The Ion Sense Glow Plug requires no cylinder retooling or reconfiguration and uses standard glow plug single pin connector and wiring. With the increased emphasis on green low-carbon emissions and the efficient use of fuel, this technology...

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Ion Sense Glow Plug

shows great promise for vehicle and engine manufacturers and is ready to be put into production.

To learn more about Delphi's Combined Ion Sensor Glow Plug, [contact the licensing executive](#).

ADVANTAGES OF THE COMBINED ION SENSE GLOW PLUG

- Allows engine to be optimized closer to its physical limits
- 3-4 % increase in torque or power
- 2-3 % decrease in specific fuel consumption
- Reduces emission variation across fleet of vehicles
- 90% reduction in HC, CO, and PM variation
- 33% reduction in NOx variation
- 90% reduction in engine noise variation
- Improves the ability to diagnose the fuel injection system as required by EOBD
- Technology applicable across all diesel engines
- Lower cost monitoring over cylinder pressure based systems allowing for individual cylinder control at a more reasonable price.

K-Alloy™ continues to shine — New licensing agreement for corrosion resistant technology

Delphi Technologies has announced that K-Alloy, the aluminum alloy that offers superior corrosion resistance to traditional aluminum alloys like A380, A360 and A413, has been licensed to a smelter in China.

Originally introduced in 2003, K-Alloy was developed for die casting applications and millions of parts have been produced using this alloy. Applications include electronic components and housings, indoor/outdoor furniture, marine equipment and many other applications.

Recently, Delphi has introduced K-Alloy SP. This alloy was developed to enable free-flowing ease of casting for sand casting and permanent mold applications.

As a result of added experience with the alloy and process refinement, K-Alloy and K-Alloy SP are available at a more competitive price.

For more information about K-Alloy, or new China smelter, [contact the licensing executive](#).

ADVANTAGES OF K-ALLOY

- Excellent corrosion resistance
- Enhanced product durability
- Eliminates costs associated with other corrosion-resistant treatments
- Alloys available for die cast, sand and permanent mold castings

5 in 1 monitor — Delphi Diesel Oil Condition Sensor

Delphi engineers have developed a revolutionary new diesel engine oil condition sensor that provides on-engine sensing of five critical parameters. This sensor can measure: 1) the percentage of soot in the oil based on the dielectric constant change, 2) the oil viscosity based on a

temperature/time profile, 3) fuel dilution, 4) oil temperature, and 5) oil level.

The sensor shows great promise for military vehicles, medium- and heavy-duty trucks, naval ships, locomotives, power generators, and mining machinery.

The sensor can also be integrated into an overall vehicle engine/powertrain monitoring package.

A cost analysis by Delphi for two fields of use shows:

- Fleets – Reduced engine lubrication costs which can represent an approximate savings of \$710/year per truck.
- Military – Significant operating maintenance savings, improved operational up-time plus real time assessment, eliminating the need for traditional remote lab analysis.

To learn more about the diesel oil condition sensor or request an application guideline, [contact the licensing executive](#).

BENEFITS OF DELPHI'S ENGINE OIL CONDITION SENSOR

- Maximizes oil and filter life
- Cost savings through extended change intervals
- Reduces warranty exposure
- Helps detect oil contaminants reducing the risk of engine failure

Get the facts

Like to know more about the unique Delphi Diesel Oil Condition Sensor? Delphi Technologies can email you a user manual in PDF format. It provides detailed information on the Sensor, its use and operation. Just drop an [email to the Delphi licensing executive](#).

Please feel free to pass this on to a colleague. New subscribers can [click here](#) to be added to our email list.

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DELPHI TECHNOLOGIES PORTFOLIO

Our portfolio is composed of approximately 9,500 patents, software and trade secrets world wide from the following technologies:

Engineered Materials

Delphi has developed an extensive array of material and processing technologies through the manufacturing of automotive components and systems. • Ceramics • Fluids • Coatings • Polymers • Nano Composite Materials

Sensors & Actuators

Delphi is a leader in the development and design of automotive and non-automotive sensors. • Chemical • Mechanical • Micro Electronic Mechanical Systems (MEMS) • Optical • Thermal

Mechatronics & Control Systems

Delphi's leadership in Engine Management Systems has resulted in expertise in developing highly reliable and robust mechatronic systems as well as the electronics that control them. • Smart Connectors • Motors/Actuators • Solenoids

Communications & Wireless

Delphi communications technologies are platforms for the multimedia applications of tomorrow – allowing our customers to offer new levels of productivity, convenience and entertainment. • Antenna Systems • Navigation • Human Machine Interface • Fiber Optics • Smart Connectors • Satellite Digital Radio • Wireless Communication

Lighting & Displays

Delphi's lighting and displays technologies employ the state-of-the-art in LEDs, fiber optics, LCD, holograms, etc., to create unique user environments and increase functionality of human-machine interfaces. • Fiber Optics • LCD Displays • Edge Lighting

Manufacturing Processes & Logistics

By concentrating on total manufacturing costs, Delphi's advanced processes reduce the number of parts, fasteners and materials, while optimizing labor, part orientation and material handling. • Assembly Technology • Machine Vision • Machining • Material Processing

Electronics & Electronic Processes

Delphi is a world leader in the production of automotive wiring harnesses and connectors for electrical power and signal distribution. • Electronic Packaging • Controllers • Flip Chips • Logic Circuits • Power Supply • Electronic Cooling Technology • Thick Film Electronics

Safety & Security

Delphi has been an industry leader in developing safety and security technologies. It has provided occupant protection technologies to manufacturers for over 50 years. • Obstacle Detection • Anti-Theft Sensors • Monitoring System Integration • Occupant Detection Systems

Software & Databases

Delphi develops software tools, algorithms, control systems and methodologies to support the design of automotive components and systems. Many have application outside the automotive industry. • Simulators • Controls

Energy & Environmental Systems

Delphi takes an aggressive role in protecting the environment by developing technologies that reduce emissions, mass, and increase fuel economy. • Recycling • Vehicle Emissions • Energy Storage (Fuel Cells) • Engine Management Systems (Sensors, Actuators, ECU)