

Delphi Hybrid Evaporative Emissions Canister Module

The Delphi Hybrid Evaporative Emissions Canister Module is a specially designed technology to help vehicle manufacturers meet the world's most stringent evaporative emissions requirements while optimizing a vehicle's fuel economy. The module includes an extremely efficient carbon canister integrated with a purge air heating unit.

Conventional evaporative emissions canisters are designed to operate with regular purge cycles enabled by the engine manifold vacuum. Delphi's Hybrid Canister Module provides increased canister regeneration efficiency that enables optimal evaporative emissions control in "low purge" engine operation.

Delphi's innovative, high quality Hybrid Canister Module will provide vehicle manufacturers with an important contribution to their efforts to reduce smog-forming vapors while minimizing fuel system complexity and vehicle assembly costs.



Delphi Hybrid Evaporative Emissions Canister Module

► Benefits

- Provides flexibility to help manufacturers meet Low Emissions Vehicle (LEV II and LEV III) and Partial Zero Emissions Vehicle (PZEV) standards on all gasoline fuel systems and hybrid vehicle systems
- Eliminates need for pressurized steel fuel systems in PZEV full hybrid vehicle systems, reducing overall vehicle program cost
- Can be used to enhance or replace existing carbon monolith technology to meet the needs of any low purge application
- "Plug and play" module enables ease of assembly for integrated and non-integrated applications and easy upgrade of existing system architecture
- Integrated over-heat and ignition protection contributes to excellent durability and safety
- Allows optimized use of activated carbon products from global suppliers for further cost savings
- Integrated on-board diagnostics (OBD) capability available
- Proven robustness of carbon canister technology helps enable durable, reliable performance

► Typical Applications

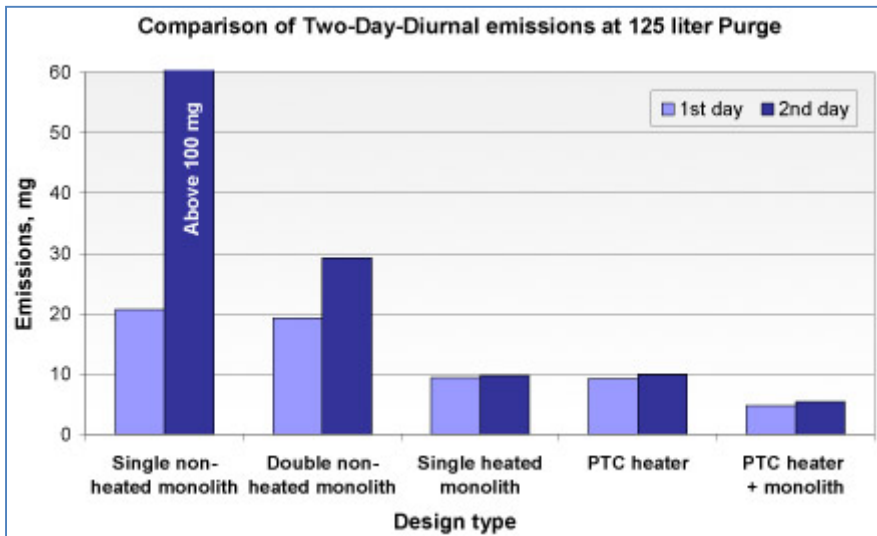
The Delphi Hybrid Evaporative Emissions Canister Module, with its increased canister regeneration efficiency, is designed to support "low purge" engine programs, especially hybrid vehicles. It is also suitable for gasoline direct injection (GDI) and turbocharged engine programs.

Delphi's Hybrid Canister Module is compatible with ethanol-blended fuel systems.

► Availability

The Delphi Hybrid Evaporative Emissions Canister Module with heated purge is being validated. Engineering samples are available for automotive manufacturer customers. Contact Delphi for further information.

▶ **Performance Comparison Hybrid vs. Conventional Technology**



The graph shows that Delphi's heated purge options have improved evaporative emissions capability versus conventional options in Two-Day Diurnal Emissions Tests for 2.3 liter canisters at 125 liter purge, demonstrating their capability to help manufacturers meet PZEV requirements.

▶ **Performance Advantages**

The Delphi Hybrid Evaporative Emissions Canister Module is an innovative "green" technology. Its active heated purge enables a complete and highly efficient cleaning of gasoline hydrocarbon molecules from the carbon monolith during gasoline engine operation. The canister has increased cleaning capability to compensate for "low purge" operation of PZEV, LEV III and hybrid vehicles.

▶ **The Delphi Advantage**

Delphi is one of the world's leading manufacturers of evaporative emissions canisters, producing millions annually and providing customers with products that offer world class quality and performance. Delphi offers the benefits of more than 35 years' experience, and in-depth knowledge of evaporative emissions canister design and market requirements. Delphi offers low cost evaporative emissions canister manufacturing in North America, Asia and Europe. Delphi has full engineering capabilities in North America and Europe to help manufacturers meet evolving evaporative emissions criteria.

As a global leader in engine management systems technology, Delphi can help manufacturers around the world meet emissions requirements, improve fuel economy and enhance performance. Delphi is a source for high value solutions and our systems expertise is built into every product. Delphi's flexible engineering approach encourages collaboration. And, Delphi has a thorough understanding of automotive markets around the world and a global network of resources.