

Delphi Throttle Bodies—Electronic and Mechanical

► Description

Delphi Throttle Bodies control airflow to the engine. A butterfly valve in the throttle body opens and closes the passage into the intake manifold to increase or decrease the volume of incoming air.

Delphi produces two types of throttle bodies:

- Delphi Electronic Throttle Bodies are controlled by an electronic signal from the engine management system. They offer increased system air control versus mechanical systems to enable the application of advanced engine technologies and vehicle control features to help improve engine efficiency. They can be tailored to meet customer needs for airflow, response time, and system position feedback.
- Delphi Mechanical Throttle Bodies offer a simpler alternative to electronic systems while maintaining durability and reliability. They are mechanically linked to the accelerator and are constructed of aluminum or composite materials.



Delphi Electronic Throttle Control with Non-contact Sensor

► Delphi Throttle Bodies Portfolio

► Delphi Electronic Throttle Bodies

Delphi Electronic Throttle Bodies are designed to provide enhanced powertrain functionality—drivability, selectable performance, cruise, and traction control—with fewer components than a traditional system. They feature an aluminum body in a smaller, cost-effective package with a single connection. They help enable advanced vehicle technologies such as hybrid systems, gasoline direct injection, collision avoidance, adaptive cruise control, and autonomous vehicles. They are available in a full range of bore sizes.

Delphi Electronic Throttle Bodies feature a DC brush motor with two-stage gears and a throttle position sensor based on contact or non-contact sensor technology. Motor and gear characteristics are optimized for maximum force capability.

Delphi Throttle Bodies—Electronic and Mechanical

▶ Delphi Electronic Throttle Bodies - Features and Benefits

- Non-contact sensor provides increased durability and reliability compared to contact sensor.
- Roller element bearing motor provides improved control of motor to help minimize brush wear and increase durability.
- Contact sensor is physically separated from the gearbox to avoid gear dust contamination of sensor and reduce shaft position variation for improved warranty performance.
- Stiff casting design helps minimize vibration for improved motor and sensor durability.
- No metal-to-metal contact in gear train helps reduce contamination in gear train and sensor.
- Various bearing configurations available (needle, ball, and bushing) to meet specific designs based on customer needs.
- Dual lip seals improve sealing to help avoid moisture penetration.

▶ Delphi Mechanical Throttle Bodies

Delphi Mechanical Throttle Bodies offer integrated idle air control, and throttle position sensor functions, and they are available in either aluminum or composite material, and in a wide range of bore sizes. Composite mechanical throttle bodies offer increased resistance to corrosion and a significant mass reduction compared to aluminum throttle bodies. Delphi offers multiple lever or cam linkage interfaces. Delphi Composite Mechanical Throttle Bodies also offer reduced investment and piece cost due to a net form body.



Delphi Aluminum Mechanical Throttle Body



Delphi Composite Mechanical Throttle Body

Delphi Throttle Bodies—Electronic and Mechanical

▶ Delphi Small Engine Electronic and Mechanical Throttle Bodies

Delphi Small Engine Electronic and Mechanical Throttle Bodies are suitable for use in small engine applications such as motorcycles, lawn mowers and generators. Mechanical throttle bodies for small engines are integral to Delphi fuel and air systems, and offer a significant improvement compared to carbureted systems. Delphi is leveraging its experience as a leading mechanical throttle body manufacturer to develop the next generation of electronic throttle bodies for small engine applications. Delphi's small engine electronic throttle bodies feature a single electrical connector and they eliminate mechanical governor systems while helping to increase fuel economy up to 30 percent.



Delphi Small Engine Electronic Throttle Body



Delphi Small Engine Mechanical Throttle Body

▶ Delphi Small Engine Electronic Throttle Bodies - Features and Benefits

- Brushless motor helps increase durability.
- No throttle cable routings provide enhanced packaging flexibility.

Delphi Throttle Bodies—Electronic and Mechanical

▶ Typical Applications

Delphi Throttle Bodies are available for a wide range of applications, including automotive, marine, and small engines (e.g. motorcycles, lawn mowers, and generators). They are also available in a wide range of bore sizes and configurations to meet individual customer requirements.

▶ The Delphi Advantage

Delphi has long been a leading manufacturer of carburetor, throttle body injection, and mechanical and advanced electronic throttle bodies. Delphi has a long history of manufacturing throttle bodies, with many millions on the road today. As a global leader in engine management technology, Delphi integrates air and fuel management systems, and the associated electronic controls and sensors to create complete engine management systems to help manufacturers around the world meet emissions requirements.

Delphi manufactures throttle bodies at facilities in the United States, Brazil, China, Korea, Poland, India and Mexico, with additional developmental research and support facilities worldwide. This global presence helps Delphi to be able to provide exceptional on-time delivery performance.



Delphi produces a variety of Electronic Throttle Bodies suitable for a wide range of applications.



Delphi Mechanical Throttle Bodies are suitable for many different applications.