

ENGINE MANAGEMENT PORTFOLIO

BWD

Intermotor® 
Genuine Import Parts

TechSmart®

OE-Match
TPMS
SENSORS

BWD **DIESEL**

 **SMP**®
Standard Motor Products, Inc.

About this Book

We created the Engine Management Portfolio to give you an in-depth look at our product offering. As part guidebook, part sales pitch book, and part training manual, our Engine Management Portfolio provides you with the information that you need to promote and sell SMP® brand parts.

What You'll Find Inside:

- **Features and benefits** that concisely highlight what distinguishes our parts
- **Big, clear photos and CAD drawings** that illustrate our parts inside and out
- **Technician tips** that provide expert insight into repairs and installation
- **Related parts** that highlight all of the components needed for a complete repair
- **...and many more helpful resources** that exemplify why Standard Motor Products is the industry leader

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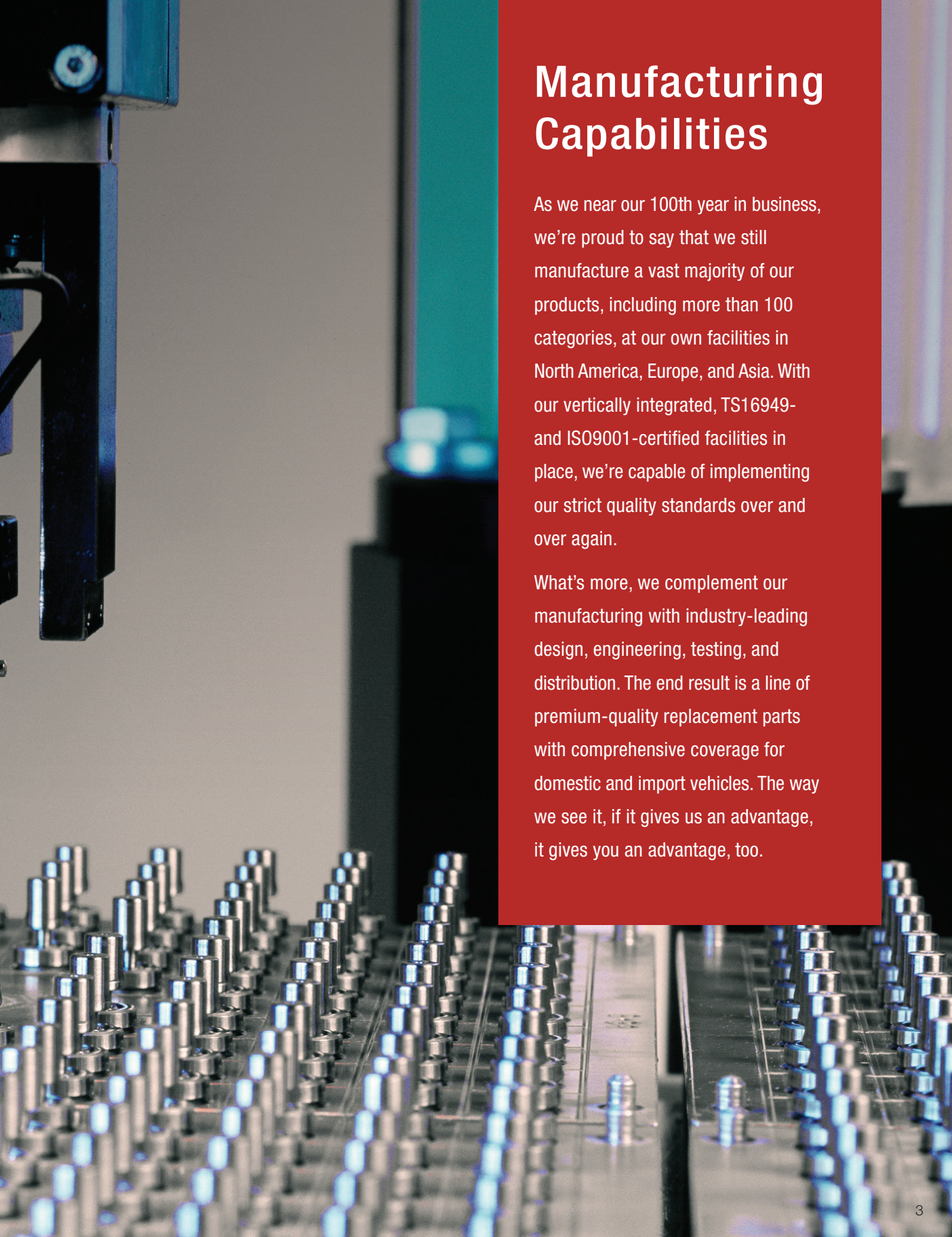
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About Standard Motor Products

Founded in 1919, Standard Motor Products, Inc. (SMP®) is a leading independent manufacturer, distributor, and marketer of replacement parts in the automotive aftermarket industry. Over the years, SMP® has increased its focus on the original equipment and original equipment service markets. SMP® is organized into two major operating segments: an Engine Management Segment that manufactures a full line of engine management-related products, and a Temperature Control Segment that manufactures and remanufactures a full line of replacement parts for automotive air conditioning and heating systems.



Manufacturing Capabilities

As we near our 100th year in business, we're proud to say that we still manufacture a vast majority of our products, including more than 100 categories, at our own facilities in North America, Europe, and Asia. With our vertically integrated, TS16949- and ISO9001-certified facilities in place, we're capable of implementing our strict quality standards over and over again.

What's more, we complement our manufacturing with industry-leading design, engineering, testing, and distribution. The end result is a line of premium-quality replacement parts with comprehensive coverage for domestic and import vehicles. The way we see it, if it gives us an advantage, it gives you an advantage, too.

Key Facilities

Standard Motor Products has manufacturing and distribution facilities around the world. To get a sense of our global presence, check out our key facilities and what they do:

Bialystok, Poland



Size: 80,000 sq. ft.
Manufactures: ignition coils, glow plugs, switches, and sensors

Disputanta, VA



Size: 411,000 sq. ft.
Distributes: engine management products

Edwardsville, KS



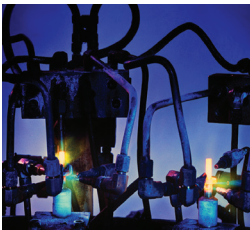
Size: 355,000 sq. ft.
Distributes: wire and cable products

Foshan, China



Size: 180,000 sq. ft.
Manufactures: A/C hose assemblies, accumulator/filter driers, and switches

Greenville, SC



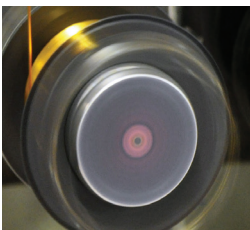
Size: 181,000 sq. ft.
Manufactures: fuel injectors, ignition coil-on-plugs, and computerized engine controls

Hong Kong, China



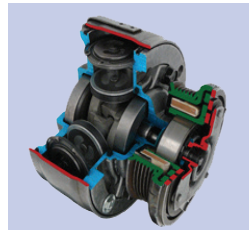
Size: 1,900 sq. ft.
Responsibilities: global sourcing, engineering, and certifying manufacturing partners

Independence, KS



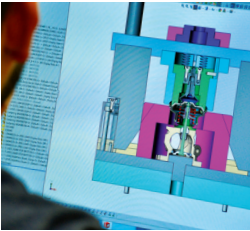
Size: 388,000 sq. ft.
Manufactures: sensors, controllers, switches, regulators, and other ignition components

Lewisville, TX



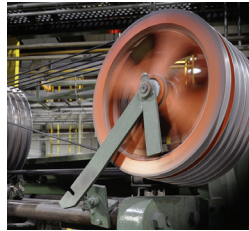
Size: 430,000 sq. ft.
Distributes: temperature control products

Long Island City, NY



Size: 86,000 sq. ft.
Responsibilities:
corporate headquarters,
engineering laboratory
and testing facility

Mishawaka, IN



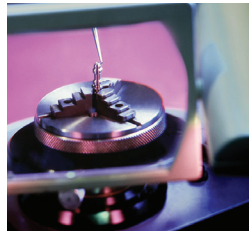
Size: 160,000 sq. ft.
Manufactures: ignition
wire and cable

Mississauga, Ontario, Canada



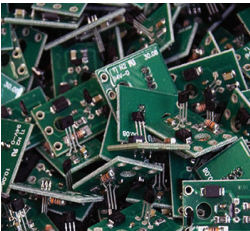
Size: 128,000 sq. ft.
Distributes: all products
for Canadian customers

Orlando, FL



Size: 51,000 sq. ft.
Manufactures: high-tech
products such as MAP
sensors and Fuel Injection
Control Modules

Reynosa, Mexico (Engine Management)



Size: 140,000 sq. ft.
Manufactures: emission
controls, EGR valves,
cam/crank sensors,
and fuel pressure regulators

Reynosa, Mexico (Wire & Cable)



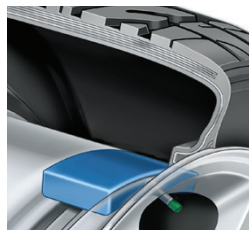
Size: 137,000 sq. ft.
Manufactures: wire
and cable, testing

St. Thomas, ON, Canada (Unimotor)



Size: 160,000 sq. ft.
Manufactures: blower
motors, cooling fan
motors, and condenser
fan motors

Taichung, Taiwan (Orange Electronic Co.)



Size: 35,000 sq. ft.
Manufactures: tire
pressure monitoring
system (TPMS) sensors

Keys to SMP® Engineering

Committing to Initiatives

Since 2010, we've increased our engineering staff and resources by 50%. On top of that, we have five fully equipped design centers with a technical staff of more than 120 people, and we earmark a significant portion of capital each year to increase our manufacturing capabilities.

Designing from the Ground Up

Our engineers design our products from the ground up using 3D design modeling. CAD electronic circuit design allows them to simulate and analyze every detail. Other advanced methodologies include:

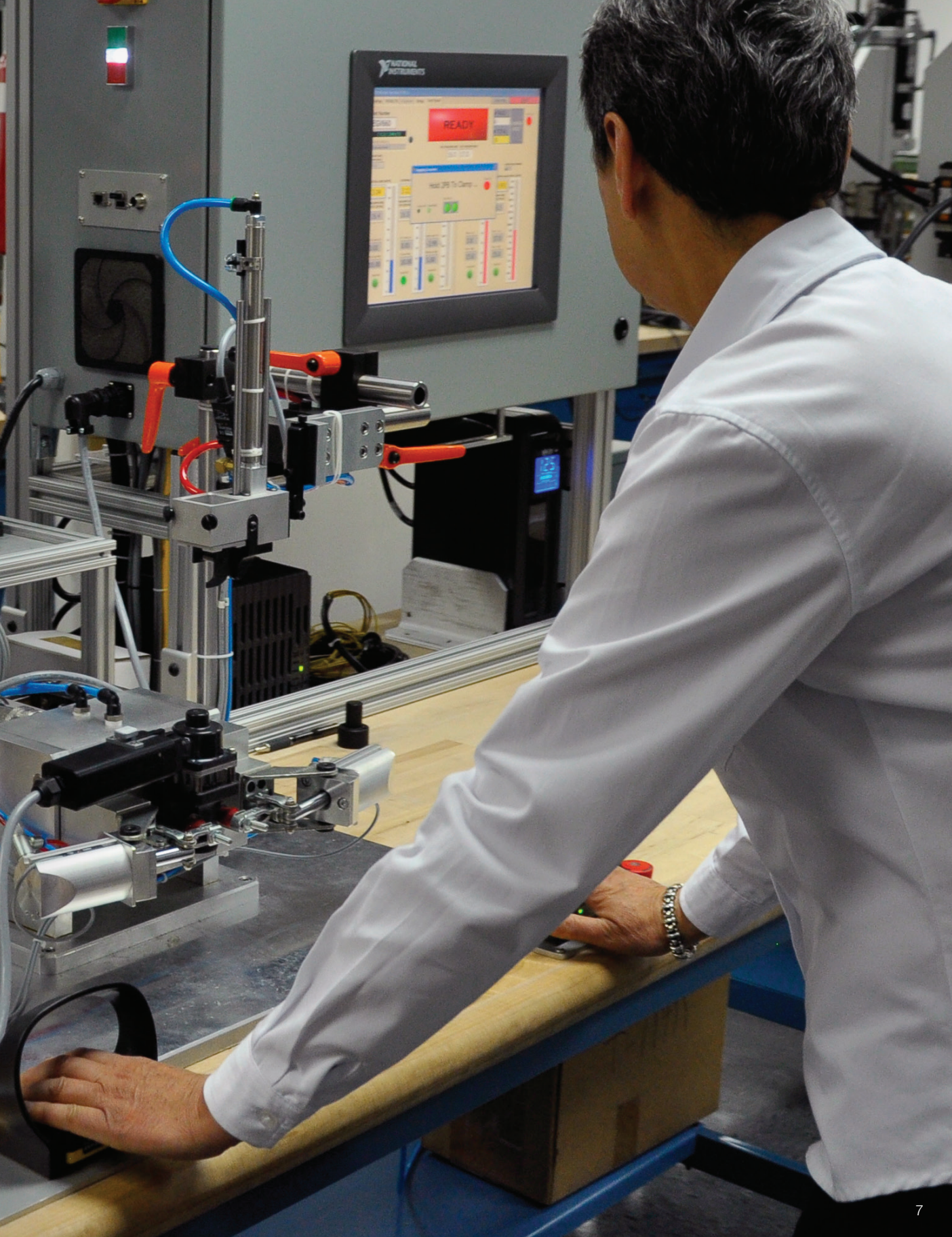
- FEA modeling
- Stress analysis modeling
- Finite elemental analysis
- Fast prototyping
- SLA stereo lithography
- Digital performance analysis

When We Don't Make It

With more than 40,000 parts in our line, we can't make everything. We do, however, have the resources and experience to ensure that every product we pack is always the result of the highest quality of engineering and testing. For example, our Asian sourcing office supplements our U.S. purchasing group, and our offices in Hong Kong and Taiwan have engineering expertise.

Support from Long Island City, NY

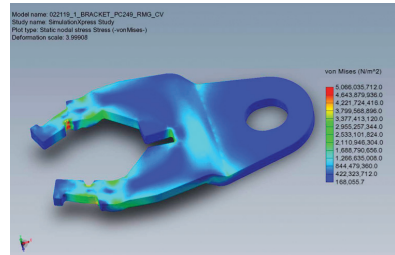
To support our staff at our international sourcing offices and other facilities, we have a 20,000 sq. ft. engineering laboratory and testing facility at our headquarters in Long Island City, NY. There, our team of engineers and technicians work to design, develop, and test our products to ensure optimum performance and long service life. They even design and develop tooling to personalize it to our design, engineering, and manufacturing standards.



Testing to Ensure Reliability

After we engineer the parts, we subject them to extensive testing and product validation to ensure 100% consistent product reliability. The testing and validation regimen includes end-of-line and product life cycle testing as well as the following tests:

- Vehicle Dynamometer
- Engine Dynamometer
- 5 Gas Analysis
- Vehicle Cold Chamber
- Vehicle Test Fleet
- Thermal Cycling
- Durability
- Vibration
- Salt Spray/Humidity
- Spray Pattern Analysis
- Air/Fluid Leakage
- Flow Test Stands (multiple fuels)
- Hot Injector Flow
- Digital Output Analysis

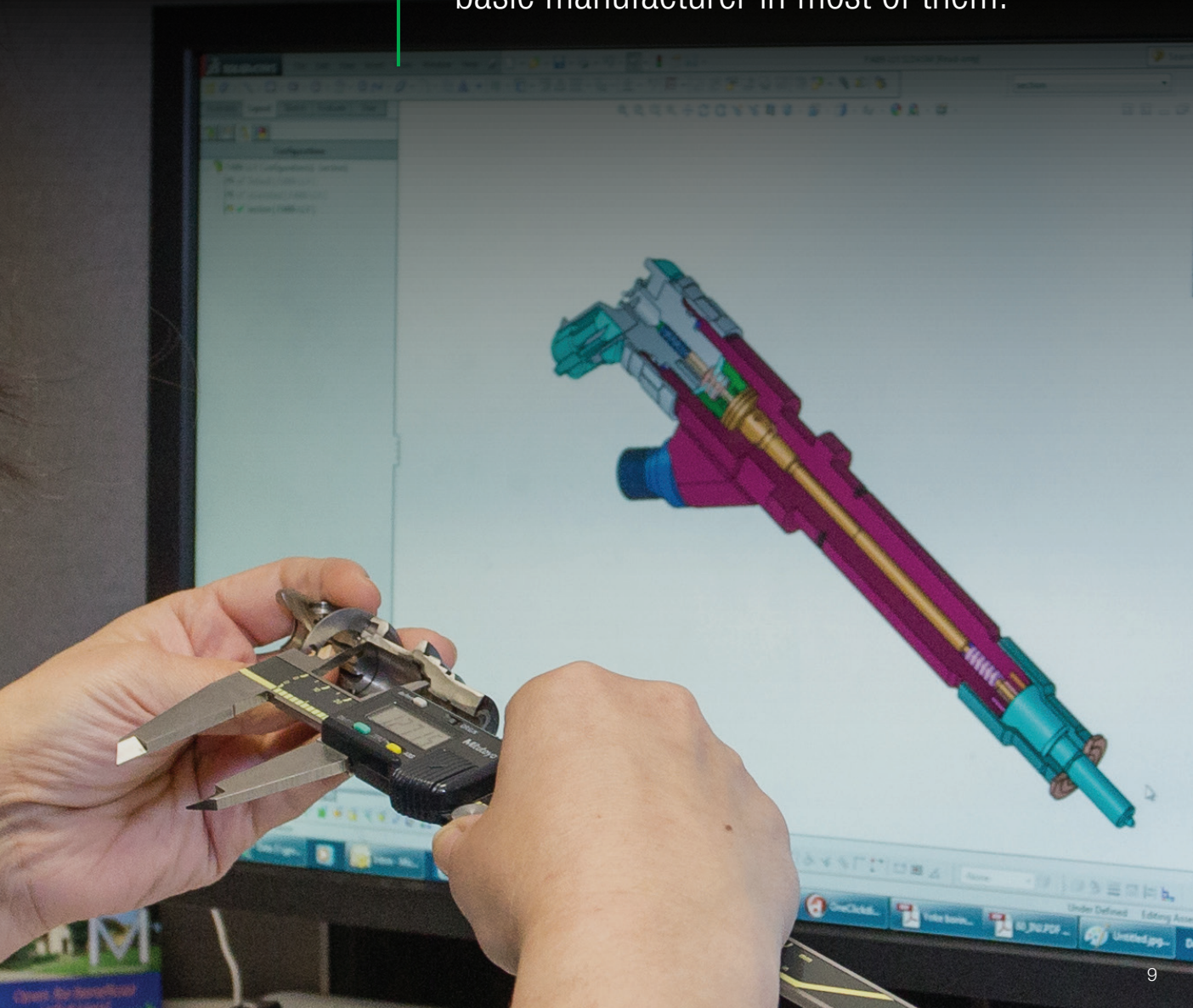


Analysis of one of our crankshaft sensor brackets—no component is too small to scrutinize



Diesel

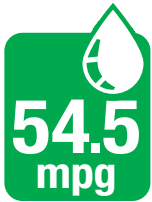
BWD® Diesel offers hundreds of parts in dozens of unique diesel engine management categories, and we're a basic manufacturer in most of them.



About BWD® Diesel

Diesel: The Next Global Transportation Fuel

Compared to gasoline, diesel has 20-40% better fuel economy and 10-20% fewer emissions. For high-quality bio-diesel blends, emissions are even lower. That's one of the reasons why industry experts are so bullish on diesel fuel. In fact, the International Energy Agency predicts diesel will remain the "dominant growth fuel" through 2035. Considering these positive forecasts, it's no wonder OEM's are expanding their use of Clean Diesel Engine platforms.



Vehicle MPG the Government CAFE standard is requiring by 2025



Number of diesel makes and models introduced by vehicle manufacturers between 2013 - 2016



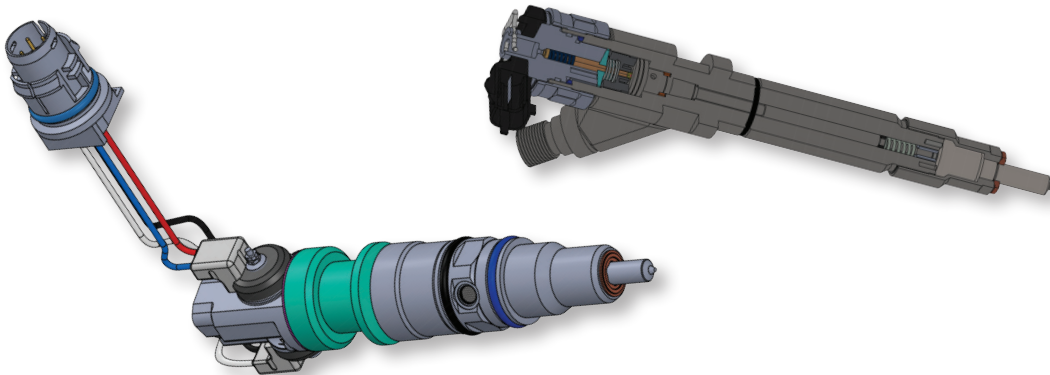
Expected diesel share of U.S. Passenger Car/ Light Truck market by 2020



Percentage of service stations offering diesel fuel

BWD's Plan to Lead the Diesel Market

To account for the burgeoning diesel market, BWD® has fully invested in diesel. Today, BWD® Diesel offers hundreds of parts in dozens of unique diesel engine management categories, and we're a basic manufacturer in most of them. Looking ahead, BWD® Diesel is determined to deliver comprehensive coverage and the finest quality diesel products, which is evident from our revamped remanufacturing processes.



Here's a list of our diesel engine management categories:

- Air Intake Heater
- Barometric Pressure Sensor
- Camshaft Sensor
- Canister Purge Solenoid
- Canister Purge Valve
- Canister Vent Solenoid
- Coolant Temperature Sensor
- Crankshaft Sensor
- EGR Control Solenoid
- EGR Cooler Kit
- EGR Valve
- EGR Valve Mounting Gasket
- EGR Valve Pressure Feedback Sensor
- Emission Fluid Injector Nozzle
- Emission Fluid Pump
- Engine Belt Tensioner
- Exhaust Back Pressure Sensor
- Exhaust Gas Temperature Sensor
- Fast Idle Temperature Switch
- Fuel / Water Separator Sensor
- Fuel / Water Separator Valve
- Fuel Filter Housing
- Fuel Heater
- Fuel Injection Control Pressure Sensor
- Fuel Injection Harness
- Fuel Injector - Diesel
- Fuel Injector Control Module - New
- Fuel Injector Heat Shield
- Fuel Injector Installation Kit
- Fuel Injector Line
- Fuel Injector Pump - Remanufactured
- Fuel Injector Seal Kit
- Fuel Injector Sleeve
- Fuel Line O-Ring Kit
- Fuel Pressure Regulator
- Fuel Pressure Regulator O-Ring
- Fuel Pressure Regulator Upgrade Kit
- Fuel Pressure Relief Valve
- Fuel Pressure Sensor
- Fuel Pressure Warning Light Kit
- Fuel Shut-Off Solenoid
- Fuel Temperature Sensor
- Fuel Transfer Pump
- Glow Plug
- Glow Plug Control Sensor
- Glow Plug Controller
- Glow Plug Controller Connector
- Glow Plug Indicator Relay
- Glow Plug Indicator Relay Connector
- Glow Plug Relay
- Glow Plug Relay Connector
- Glow Plug Temp Sensor Connector
- Glow Plug Temp Sensor
- High Pressure Oil Pump Hose
- High Pressure Oil Pump Seal Kit
- High Pressure Oil Rail Ball Installation Tool
- High Pressure Oil Rail Set Kit
- Injection High Pressure Oil Pump
- Injection Pump Installation Kit
- Injector Pump Driver Relocation Kit
- Injector Pump Module
- Injector Pump Module Resistor
- Intake Air Temperature Sensor
- MAP Sensor
- Throttle Position Sensor
- Transmission Oil Temperature Sensor
- Turbocharger
- Turbocharger Actuator
- Turbocharger Speed Sensor
- Vacuum Pump
- Valve Cover Gasket
- Valve Cover Gasket Connector
- Valve Cover Gasket with Harness
- Vertical Fuel Conditioning Module
- Wait Lamp Relay
- Wait Lamp Relay Connector
- ...and more to come!

The Anatomy of BWD[®] Remanufacturing

In order to provide the finest quality remanufactured diesel injectors, we performed an intensive review of every process from design to inspection, from teardown to assembly, from testing to packaging. The result of this exhaustive study is a remanufacturing process at our TS16949, ISO9001, and ISO14001 certified facility that's second to none. We can say with confidence that every step in our remanufacturing process exceeds the highest standards and delivers the finest diesel fuel injectors.

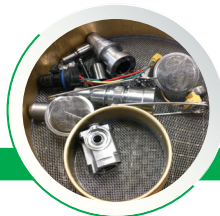
Support from Engineering Design

Our engineers manually examine hundreds of component parts for consistency in critical wear points to make sure right components get replaced.



Inspecting New Components

Our QC technicians perform supplier validation and new component qualification to comply with ISO requirements and ensure that all remanufactured diesel injectors meet the highest quality standards



Cleaning the Components

Before reassembly, our multi-step, environmentally safe cleaning process removes all oil and debris, yielding clean, identifiable parts for reclamation inspection.



Inspecting Reclaimable Components

We verify reclaimable components by measuring their critical tolerances and putting them through visual inspections and electrical testing. On top of that, we inspect all metal-to-metal sealing surfaces for potential issues.



Testing the Injectors

We measure our injectors' performance against OEM during a battery of tests—including shot-to-shot, fuel delivery, and response time tests at different pulse widths, pressure levels, and RPMs—to ensure every injector can be installed with complete confidence.



Identifying the Parts

To ensure accuracy and traceability, we laser-etch the part number and date code on every injector that leaves our facility.



Reassembling the Components

We follow a detailed work instruction for every step of the reassembly process, and all reassembly including critical tolerance measuring is performed in a temperature- and humidity-controlled room with fixturing on all stations. We manufacture high-quality, high first-time yield injectors.

Packaging the Parts

We seal each injector to protect it from elements it may encounter during shipping and storage.



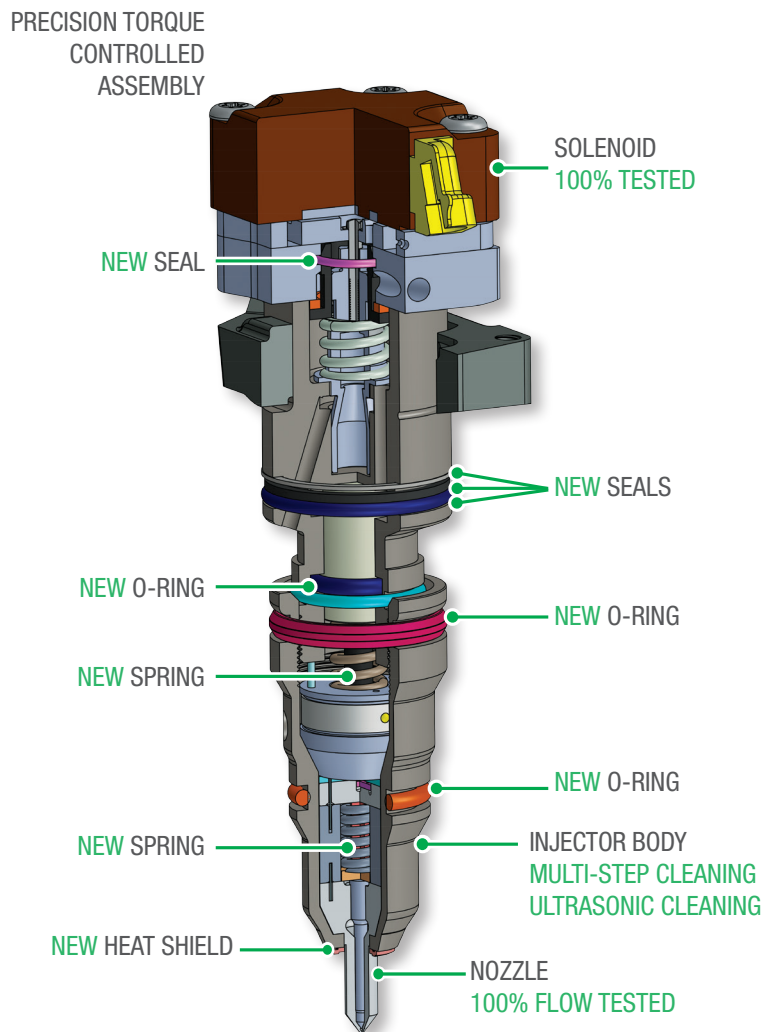
The finished product is a quality-remanufactured injector that delivers performance and durability right out of the box.



Diesel Fuel Injectors

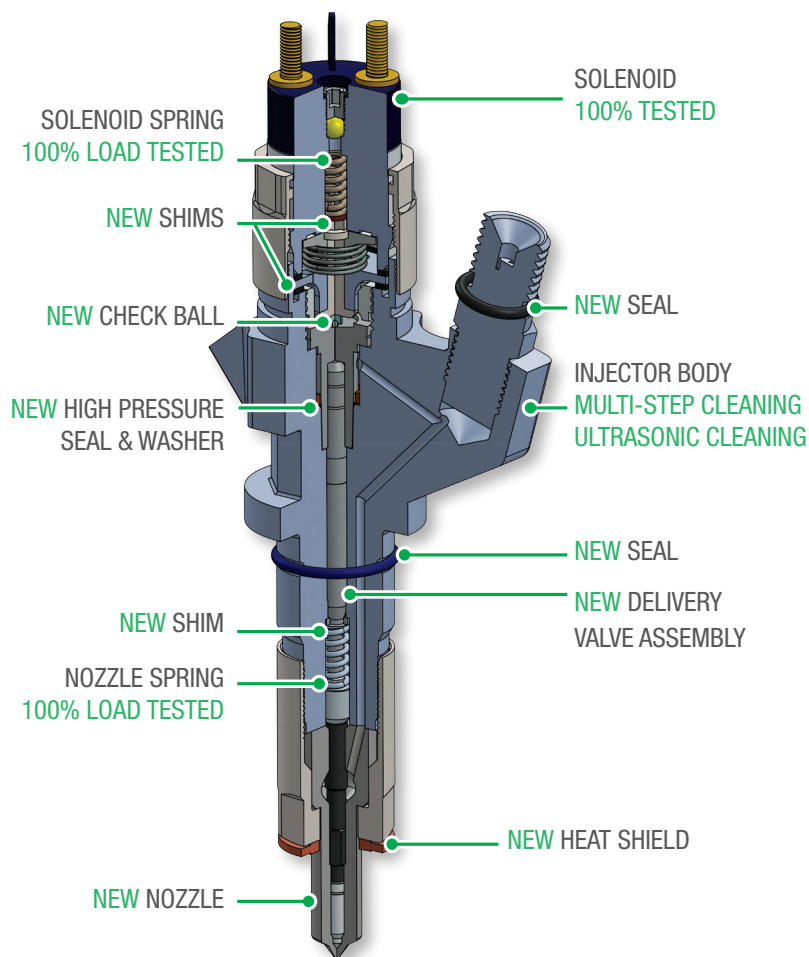
Hydraulic Electric Unit Injector (HEUI)

All BWD® HEUI Diesel Fuel Injectors receive carefully selected, known high-wear items as 100% new components during the remanufacturing process. Additionally, all HEUI injectors undergo testing for delivery output at different loads and engine RPM's.



Common Rail Injector (CRI)

All BWD® CRI Diesel Fuel Injectors receive carefully selected, known high-wear items as 100% new components during the remanufacturing process. On top of that, BWD® CRI injectors are measured no fewer than eight times during assembly process for injector pulse timing, fuel delivery, back leak, response time, pressure, and more.

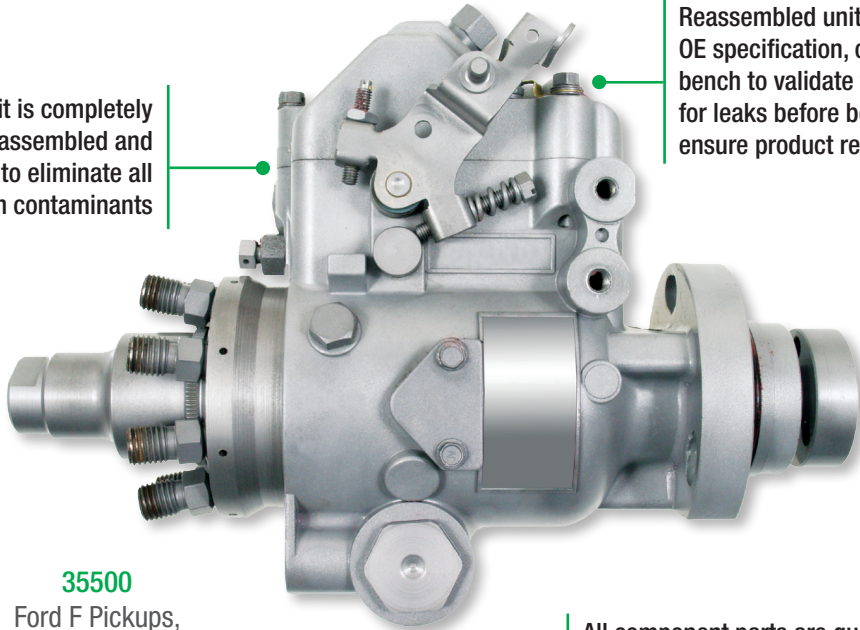


Diesel Fuel Injection Pumps

Like our Diesel Fuel Injectors, all BWD® Diesel Fuel Injection Pumps are the product of an exhaustive remanufacturing process at our TS16949, ISO9001, and ISO14001 certified facility. Throughout the course of the 10-step process, the pumps and their components are inspected, torn down and validated, cleaned, reassembled, and tested. With the detailed process in place, we can say with confidence that we provide the finest-quality Diesel Fuel Injection Pump.

Each unit is completely disassembled and cleaned to eliminate all foreign contaminants

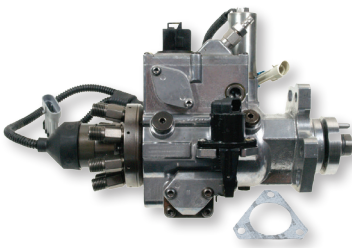
Reassembled units are calibrated to OE specification, checked on the test bench to validate flow, and checked for leaks before being packaged to ensure product reliability



35500

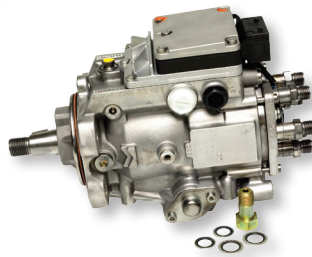
Ford F Pickups,
E-Vans (87-83)

All component parts are quality tested with the worn parts being reconditioned or replaced before reassembly begins, ensuring a quality remanufactured unit



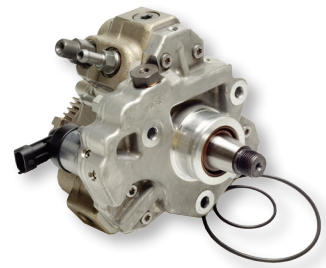
35520K

GM Pickups, Fullsize Vans,
P Series Vans (02-94)



35522

Dodge Pickups (02-98)

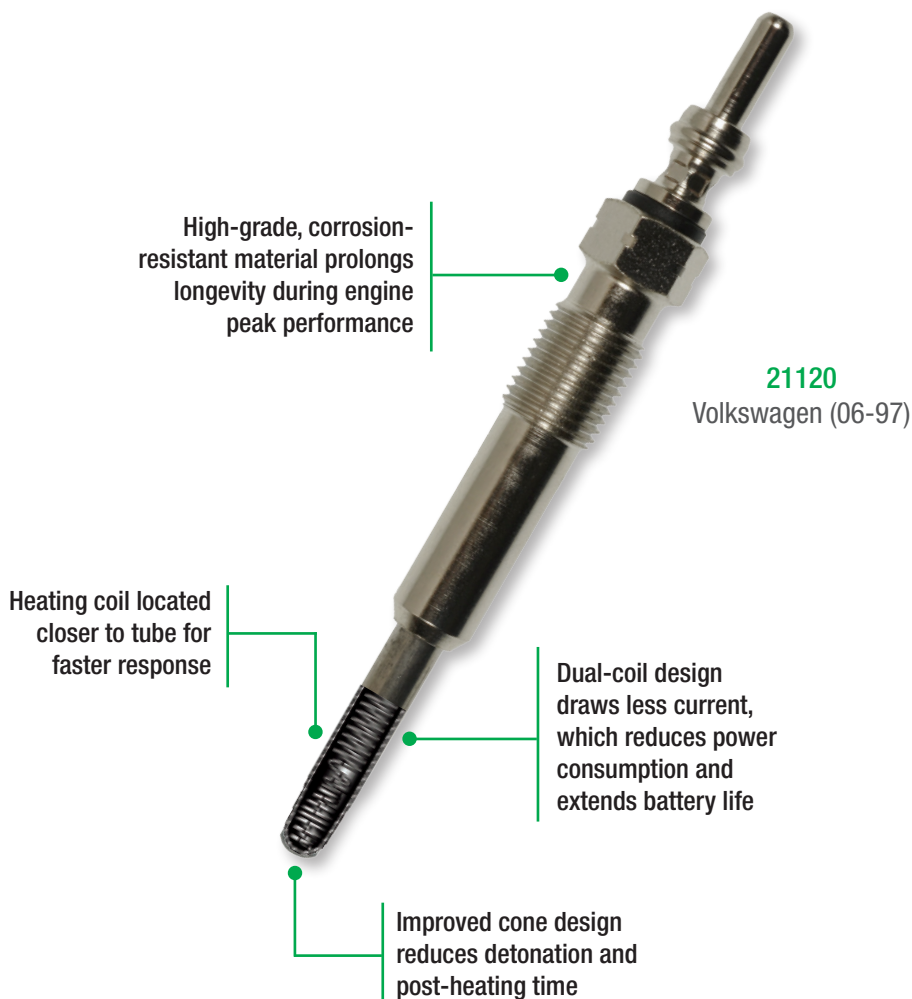


35527

GM Medium Duty Trucks (09-06)
Hummer (06)

Diesel engines use compression to induce combustion, unlike gasoline engines, which use spark plugs. When diesel engines are cold, however, compression is enhanced by the introduction of a pre-heater, known as a glow plug. Once activated, the glow plug, which has coiled wiring in its tip, flares up and emits an intense electrical heat that warms the combustion chamber and assists compression during a cold-start. It can also be used for post heating, which can improve fuel and emission performance.

With BWD's Diesel Glow Plug installed, startup time will be reduced. Plus, when the engine does start, there will be less smoke and reduced emissions. That's because our glow plug has an improved tip design.



Fuel Injection Control Module (FICM)

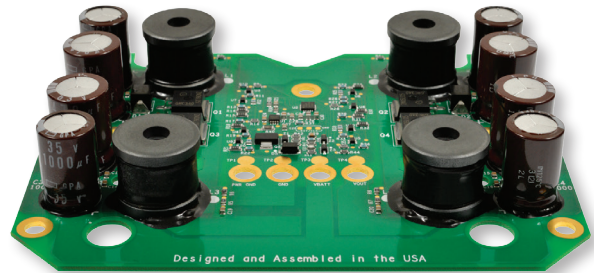
On select Ford trucks, the low-quality electronics on the OE and competition's Fuel Injection Control Modules can overheat and lead to failure. Another common cause of failure with OE units is vibration.

Designed from the ground up at our state-of-the-art manufacturing facility in Orlando, FL, our Fuel Injection Control Module (FICM) Power Supply surpasses its counterparts in quality.

- Re-engineered circuit board layout
- Higher-quality electronics reduce excess heat
- Four large coils on the circuit board that exceed OE specifications
- Gold-plated contacts for greater energy transfer
- Built-in load dump protection for reduced high-voltage interference

Featuring a re-engineered layout, the circuit board is constructed with higher-quality electronics that can protect critical components from excess heat. For proof, look at these thermal images. They were taken 1 minute after the modules were loaded during a cold-start simulation. Blue indicates cooler temperatures. Red indicates hotter.

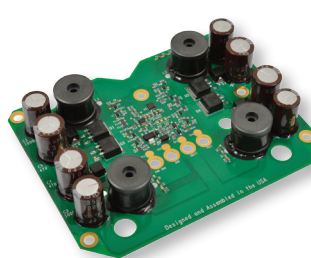
As you can see, our Fuel Injection Control Module Power Supply distributes heat more evenly, keeping diodes and other critical components cooler and preventing the failure that can occur in competitors' units.



R76001

Ford 6.0L Diesel Trucks (10-03)

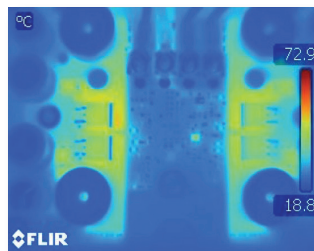
- No programming necessary
- New, NOT Remanufactured
- Designed and manufactured in the U.S.A.
- Eliminates need to replace entire module
- Components epoxied in place to help prevent vibration-related failures



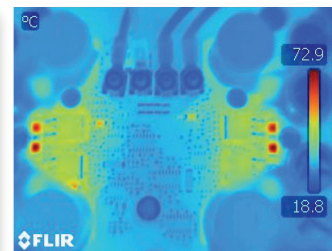
Our Module



Competitor's Module



Our Module



Competitor's Module

Fuel Pressure Regulator Upgrade Kit

A weakened stock spring can cause hard starting, stalling, poor fuel mileage, and poor acceleration. On top of that, the resulting drop in fuel pressure caused by the weakened spring can damage the injector. To make repair easier, our Fuel Pressure Regulator Upgrade Kit includes everything you need to reseal the fuel filter housing: our blue spring, O-rings, and all the necessary hardware.

Increases fuel pressure by 10-15 PSI, maximizing performance and injector life

Comes complete with gasket, O-rings, and hardware for ease of installation



R81001
6.0L Ford Trucks (07-03)
V10 Over 725,000

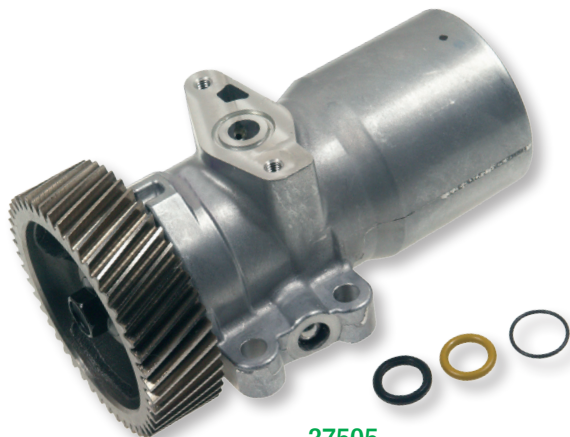


Increased Pressure

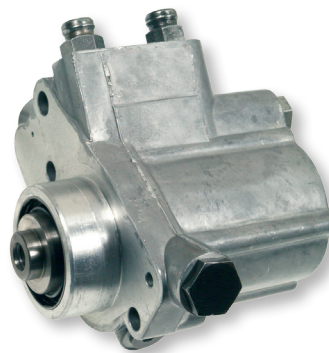
Once installed, our blue spring will increase fuel pressure by 10-15 psi, eliminating potential for injector damage.

High Pressure Oil Pumps

The High Pressure Oil Pump (HPOP) is designed to deliver high pressure oil to the fuel injectors which operate hydraulically. Each of our High Pressure Oil Pumps features BWD® engineered enhancements to ensure proper sealing and improved performance.

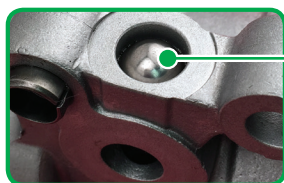


37505
Ford F Pickups, E-Vans,
Excursion (03)



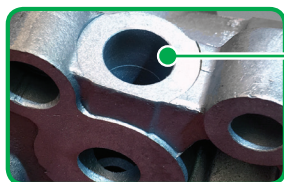
37502
Ford F Pickups,
E-Vans (99-98)

BWD® Enhancements Help Eliminate Common 6.0L Failures



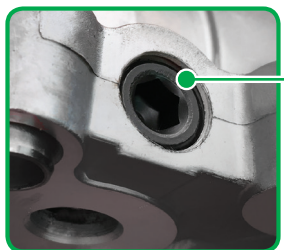
The Backstory

Original 6.0L high pressure oil pumps are designed with a check ball.



The Problem

Due to a flawed OE design, the check ball can easily become displaced, leading to housing leaks and part failure.



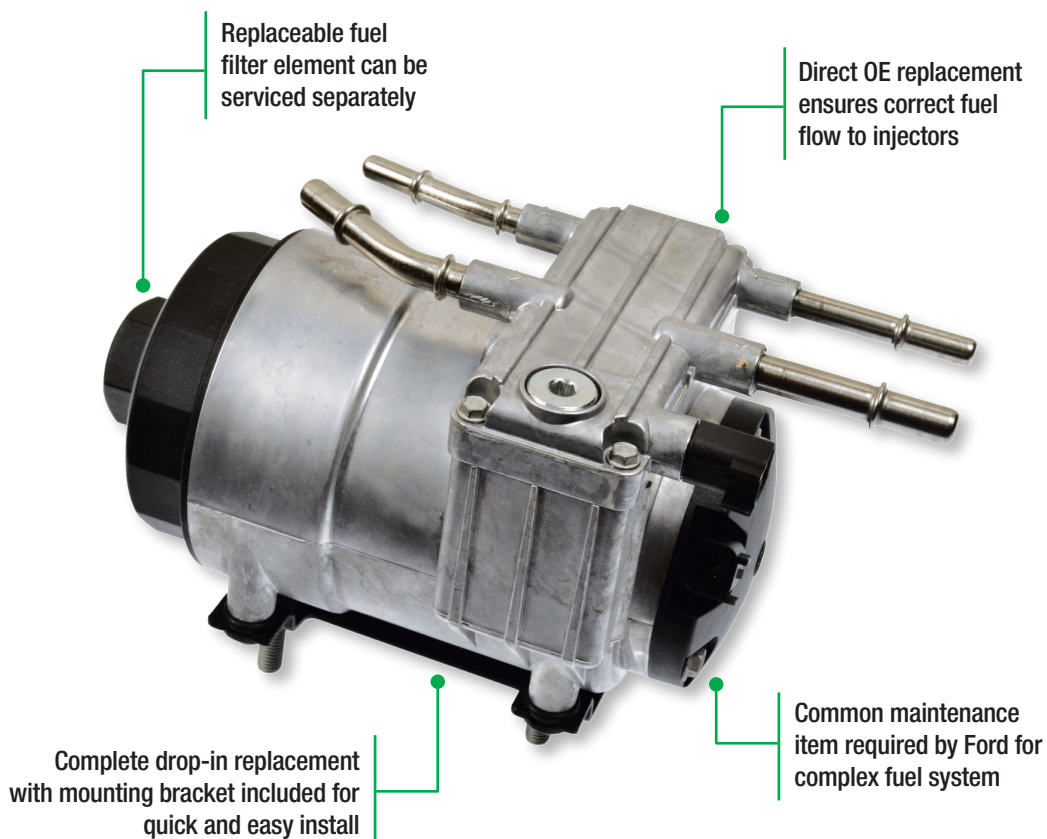
Our Solution

We replace the check ball housings with a new casting that has a threaded plug to ensure proper sealing and eliminate the original problem.

Horizontal Fuel Conditioning Module (HFCM)

The Horizontal Fuel Conditioning Module (HFCM) is a part of the complex Ford 6.0L Power Stroke Engine. Like all diesel engines, it requires quality fuel. To help provide that quality, the HFCM filters out water and other contaminants before the fuel is delivered to the injectors. Other HFCM functions include heating fuel, separating water from fuel, sensing when water is present in fuel, and creating the fuel pressure needed to supply fuel to the engine mounted fuel filter.

Our Horizontal Fuel Conditioning Module is a direct OE replacement that comes with a replaceable fuel filter element that can be serviced separately, making it a truly installer-friendly part.



Z76002
Ford Excursion 6.0L (15-03)
Ford Super Duty 6.0L (07-03)
VIO Over 900,000

Tech Tip: When servicing the engine, it can be easy to miss the HFCM. That's because it's not in the engine compartment, it's mounted to the frame rail on the driver's side.

PMD Relocation Kits

On Stanadyne DS4 electronic fuel injection pumps used on all 1994-2002 6.5L GM trucks and vans, the OE pump-mounted driver (PMD) module is mounted directly to the fuel injection pump. This location creates two problems. The first is inefficiency. If a PMD module attached to a fuel injection pump needs to be serviced or replaced, you need to reach the fuel injection pump, which is an extremely time-consuming, labor-intensive repair. The second problem is that the location on the fuel injection pump subjects the PMD to excessive heat, a known cause of this high failure part.

Our PMD Relocation Kits provide a solution to both problems. If you install the kit upfront when installing the fuel injection pump, you'll save significant time when diagnosing and replacing the PMD module in the future. As for the heat-related failure, our remote-mount PMD Kit allows you to relocate the PMD, which will help improve service life because of increased airflow around the module, thereby keeping it cooler.

- Eliminates need to reach fuel injection pump when only PMD module needs service or replacement
- The S39001 kit comes complete with a new PMD, relocation harness, aluminum heat sink, mounting hardware, and a #9 resistor.
- Already have a functioning PMD? Our S39002 kit provides only the components.



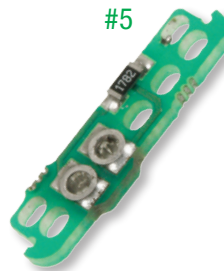
S39001

GM/Hummer 6.5L Diesel (04-94)

PMD Resistors #5 and #9

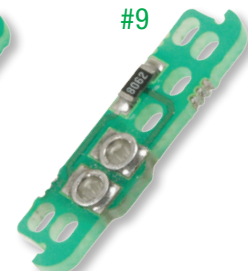
In addition to PMD Relocation Kits, we offer PMD Resistors separately: the #5 Resistor, which matches the stock settings, and the upgraded #9 Resistor, which promotes high performance settings and increased fuel flow.

- Both resistors are engineered to fine-tune fuel delivery to your preference



C24001

GM/Hummer 6.5L Diesel (04-94)



C24002

GM/Hummer 6.5L Diesel (04-94)

Turbochargers

BWD® is fully committed to the turbo market. Our current line has applications for passenger cars, SUVs, light trucks, and medium duty trucks, which gives you the coverage you need to compete in this growing market.



Turbochargers

The Upward Trend in Turbochargers

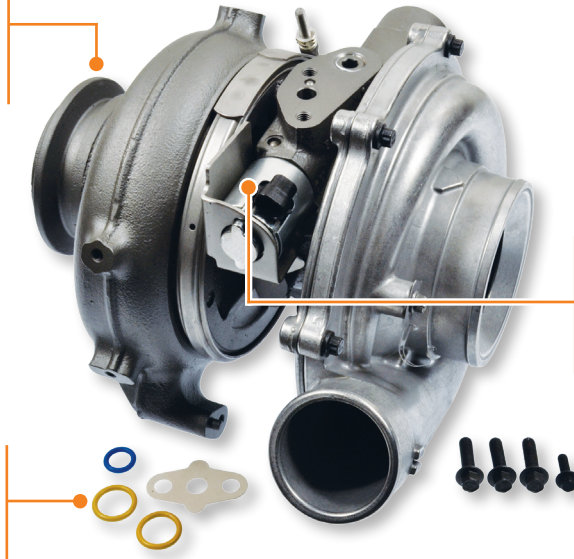
Vehicle manufacturers are adding turbochargers at a double-digit rate. While diesel passenger cars are the main consumers of turbochargers, gasoline powered vehicles utilize them as well. Why turbo? Simple. Downsized engines are needed to meet new fuel and emissions standards. Turbochargers improve power and economy up to 40%.

8.0M

The turbo market is **expected to grow significantly over the next 5 years to more than 8 million turbocharged vehicles.**

Ford dealer-remanufactured turbochargers do not include an electro hydraulic control valve. Instead, the valve is sold separately as an additional part. Eliminating the need to purchase separate parts, BWD® offers both **new** and **remanufactured** turbochargers that include the electro hydraulic control valve.

Quality-remanufactured with components from our meticulously culled core inventory to ensure maximum performance

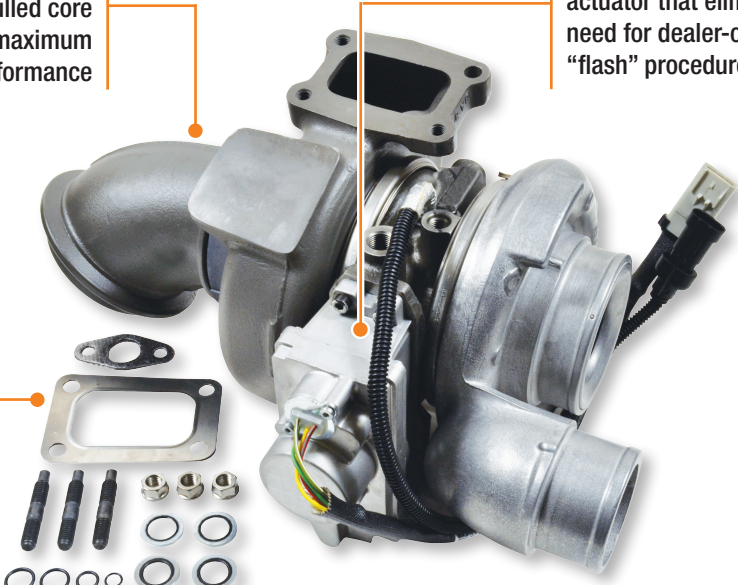


Includes new OEM electro hydraulic control valve attached to unit, eliminating need to buy separate part

Comes with complete hardware kit for ease of installation

28645
Ford 6.0L Applications (04-03)
VIO over 330,000

Our 28656 turbocharger comes with a pre-flashed actuator to communicate with the ECM, a step that can only be performed at a Cummins or Dodge Truck dealer.



Quality-remanufactured with components from our meticulously culled core inventory to ensure maximum performance

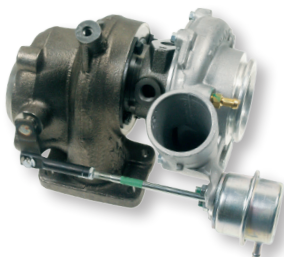
Includes exhaust elbow and pre-programmed actuator that eliminates need for dealer-only "flash" procedure

Comes with complete hardware kit for ease of installation

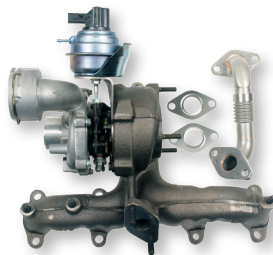
28656
Dodge 6.7 Cummins (12-07)
VIO over 250,000

BWD's Turbo Coverage Will Be Skyrocketing

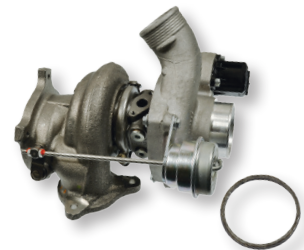
Our extensive research has helped us determine the numbers you'll need to compete in this market. Our coverage will be continually expanding to include new applications for gasoline and diesel engines on major domestic and import vehicles.



28654
Saab



28652
Volkswagen



28666
Volvo

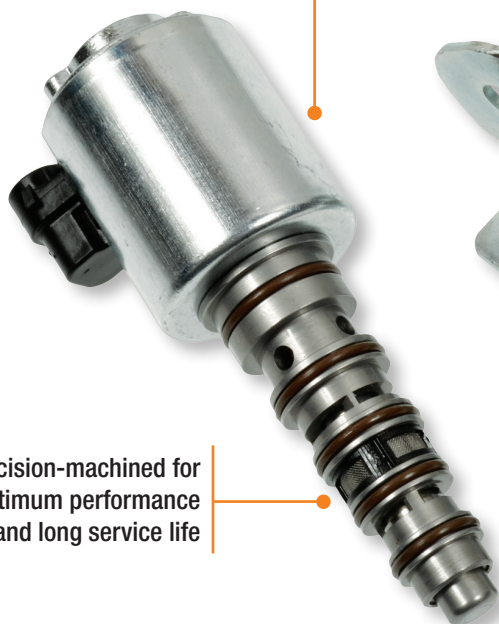
Turbocharger Actuator

On Ford 6.0L diesel engines, the turbocharger actuator (a.k.a. variable geometry turbocharger (VGT) control valve) controls the flow of exhaust gases through the turbocharger. When the turbocharger actuator fails, the vanes can stick, causing the vehicle to lose power and generate too much or too little boost pressure. The end result is a damaged turbocharger. Our Turbocharger Actuator is a direct-fit replacement for the damaged OE part, so you get a part that fits and functions like the original.

High-quality, direct-replacement part restores engine power and efficiency loss due to a clogged or burned out turbocharger solenoid

Includes mounting hardware for ease of installation

Precision-machined for optimum performance and long service life



R75002
Ford Trucks 6.0L (10-04)
V10 Over 800,000

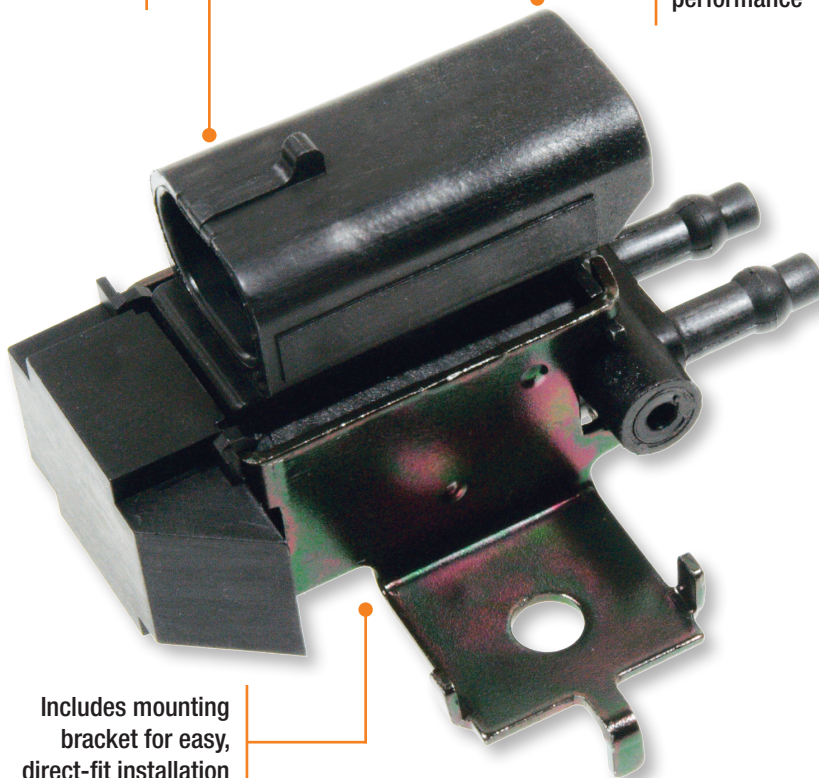
Tech Tip: When installing a turbocharger actuator on a Ford 6.0L Power Stroke engine, make sure to lubricate the O-rings using either existing or fresh engine oil.

Turbocharger Boost Solenoid

The turbocharger boost solenoid (a.k.a. wastegate solenoid) monitors the amount of boost generated in a turbocharged motor. Faulty turbocharger solenoids won't properly monitor the amount of boost generated in a turbocharged motor, which will decrease the life of the turbo and motor. Our Turbocharger Boost Solenoid is a direct replacement that regulates the amount of boost being generated from stock or upgraded turbochargers.

Direct-fit OE replacement
for ease of installation

Designed to restore
proper wastegate function
to maximize turbocharger
boost pressure and engine
performance

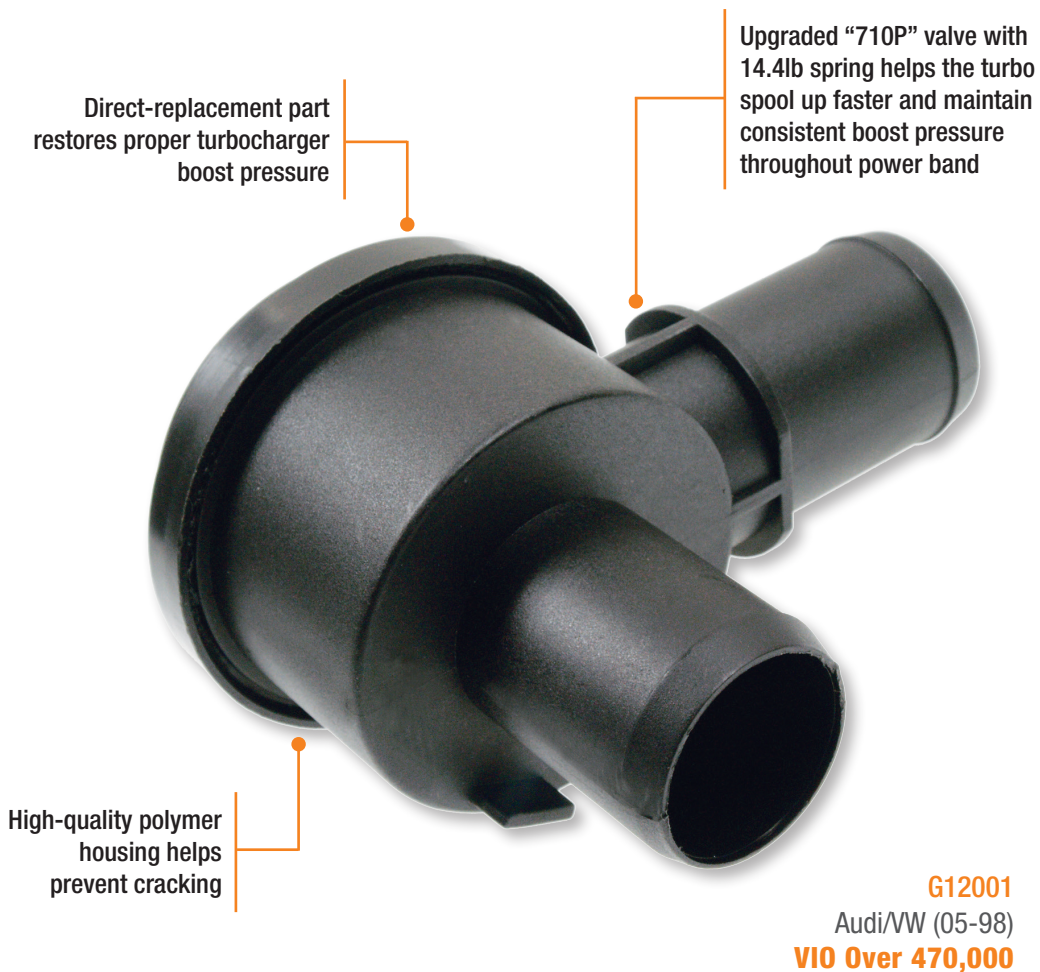


Includes mounting
bracket for easy,
direct-fit installation

U43001
GM (97-95)
V10 Over 163,000

Turbocharger Bypass Valve

The turbocharger bypass valve recirculates vented air back to the compressor inlet. Over time, OE turbocharger bypass valves can start to leak. To prevent future leaks, our Turbocharger Bypass Valve features an upgraded “710P” valve with a 14.4lb spring. The stronger spring helps the turbo spool up faster and maintain consistent boost pressure throughout the power band.



Drain tubes on certain Ford vans and trucks are prone to premature rusting. To prevent rusting and improve durability, our Turbocharger Oil Drain Tubes are made with Zinc-plated cold-rolled steel.

Zinc-plated cold-rolled steel provides superior durability and helps prevent rusting

Comes with new O-rings for ease of installation



L17001

Ford E-Vans (10-05)

Ford F-Series Pickup (07-05)

VIO Over 470,000

Salt-Fogging Test

To ensure longevity under harsh conditions, our engineers tested our Turbocharger Oil Drain Tubes against the OE in a salt fogging chamber. The results speak for themselves:

Salt Fogging Test Specifications	
Environment	Fog Chamber
Temperature	95°F / 35°C
Solution	5% Sodium Chloride, 95% Distilled Water
Application	Continual Spray
Duration	48 Hours
Drying	Warm Water Rinse, Air Dry



Turbocharger Boost Sensor

The Turbocharger Boost Sensor measures turbo manifold pressure to the ECM, and is used to calculate air density and the required fuel delivery for optimum combustion. If it fails, the system may not add fuel under boost and can result in loss of power and possible engine damage.

- Precision-manufactured to ensure performance out of the box
- Undergoes 100% in-line and end-of-line inspection to ensure long service life



EC7002
GM Heavy Duty Trucks
and Vans (10-01)
VIO Over 1.1 Million

Turbocharger Speed Sensor

The Turbocharger Speed Sensor provides the ECM with a rotational speed reading in Variable Geometry Turbos, which helps prevent excessive turbo RPM's that can cause turbo and/or engine damage.

- Quality-engineered to accurately detect turbocharger operating speed and help regulate boost pressure



L86001
Dodge Ram 2500 (10-07)
Dodge Ram 3500 (10-07)
VIO Over 300,000

MAF Sensors

BWD® and Intermotor® offer a line of 100% NEW, never remanufactured, MAF Sensors that ensure accurate airflow, precise performance, and longer service life.



NEW Mass Air Flow Sensors

The New Benchmark for Mass Air Flow Sensor Accuracy


Mass Air Flow (MAF) Sensors are precision components that measure the amount of airflow entering the intake manifold and must communicate accurately with the Engine Control Module (ECM).

Remanufactured MAF sensors with debris from prior use can hinder this communication and cause the vehicle to experience drivability issues.

To ensure accurate airflow, precise performance, and longer service life, BWD® and Intermotor® offer a higher-quality alternative: a line of 100% NEW, never remanufactured, MAF Sensors.

150+
SKUs

Number of
NEW MAF Sensors
in our line

>90%


We cover more
than 90% of all
MAF-equipped
vehicles

NEW
NOT
REMAN

BWD/Intermotor
MAF Sensors are
100% NEW,
not remanufactured

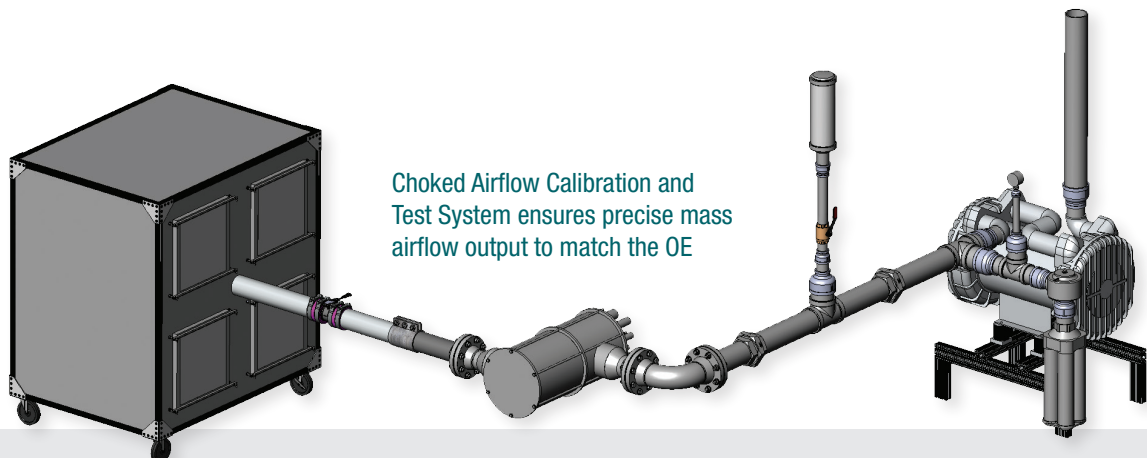
AIRFLOW
CALIBRATED

BWD/Intermotor
MAF Sensors are
Airflow Calibrated to
ensure accuracy

Testing to Ensure Accurate Airflow

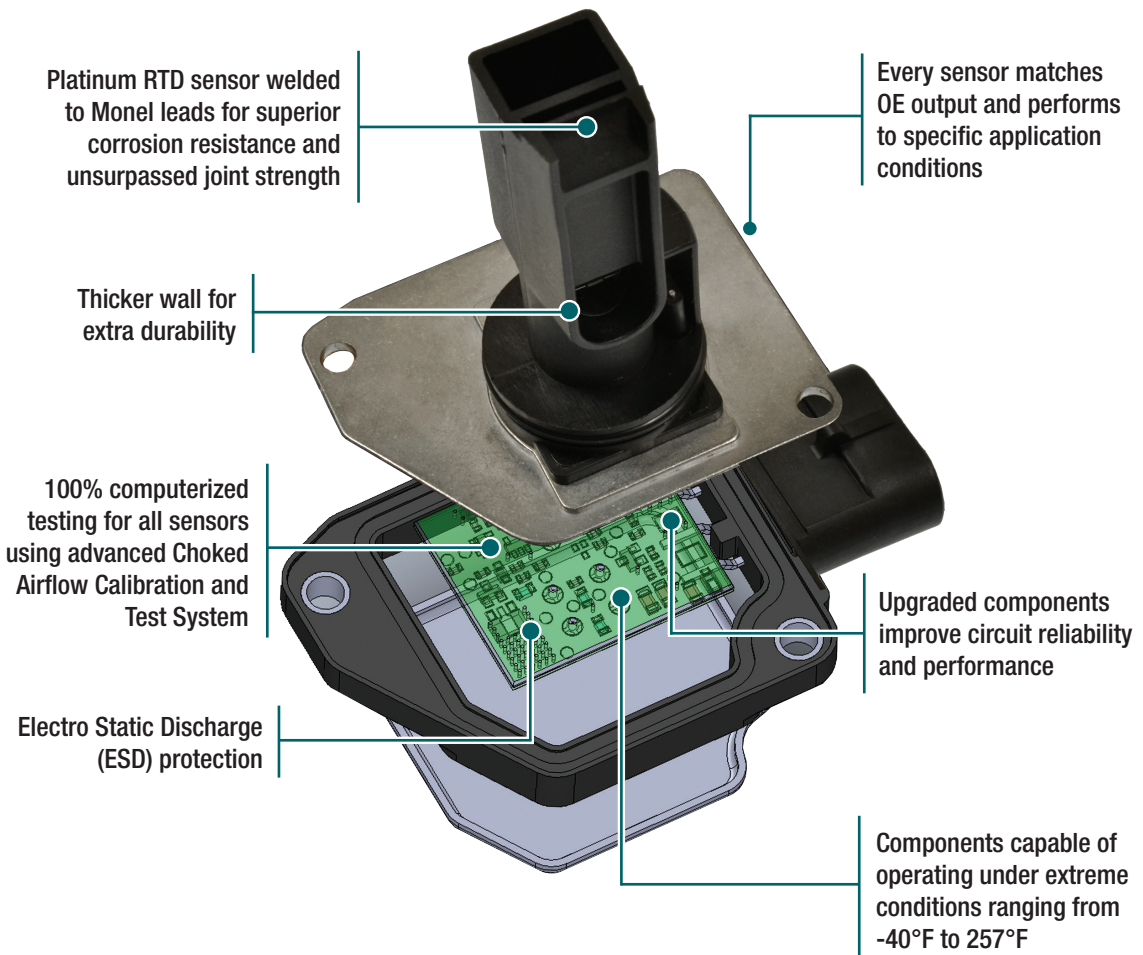
We use sophisticated automated equipment to calibrate and test our NEW MAF Sensors. Our Choked Airflow Calibration and Test System produces pristine airflow to accurately measure, and apply mass airflow in grams/second. As a result, BWD® and Intermotor® NEW MAF Sensors match the OE output precisely, and perform flawlessly under all operating conditions, every time.

Anything less would produce a MAF Sensor that is destined to fail.



Manufacturing 100% NEW MAF Sensors

Every BWD® and Intermotor® MAF Sensor is 100% NEW, not remanufactured, and all SMP-manufactured MAF Sensors are engineered and built in our vertically integrated TS16949-certified facility in Orlando, FL. SMP-manufactured sensors are designed with improvements such as thicker walls, upgraded components, and a custom-designed platinum RTD sensor. The result is a line of 100% NEW MAF Sensors that provides highly accurate readings and precise airflow signal output under all operating conditions.



SMP-Manufactured **NEW** MAF Sensors

The BWD® and Intermotor® line of 100% NEW MAF Sensors offers the broadest coverage in the aftermarket. With more than 150 part numbers, our MAF Sensor line provides greater than 90% coverage for all domestic and import MAF-equipped vehicles.



Ford



Hyundai



Honda



GM



Toyota



Nissan

From Our Engineering Team to Your Shelf...

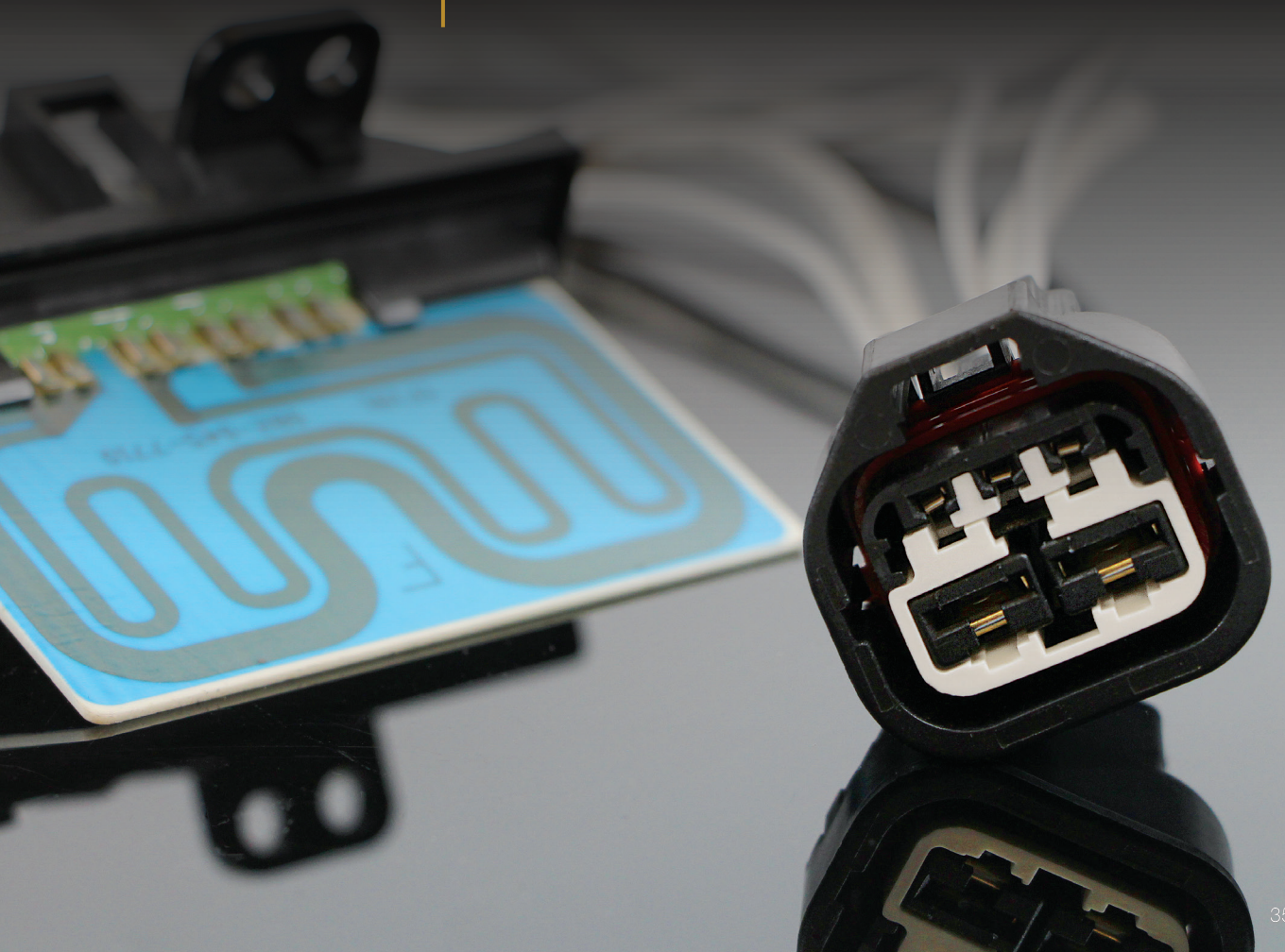
BWD® and Intermotor® deliver the finest-quality NEW Mass Air Flow Sensors in the industry. It's only fitting then that both BWD® domestic and Intermotor® import NEW Mass Air Flow Sensors are packed in premium, high-impact graphic packaging.

**Always 100% NEW,
Never Remanufactured.
Always 100%
Computer Tested.**



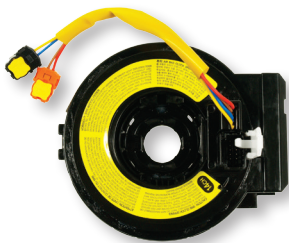
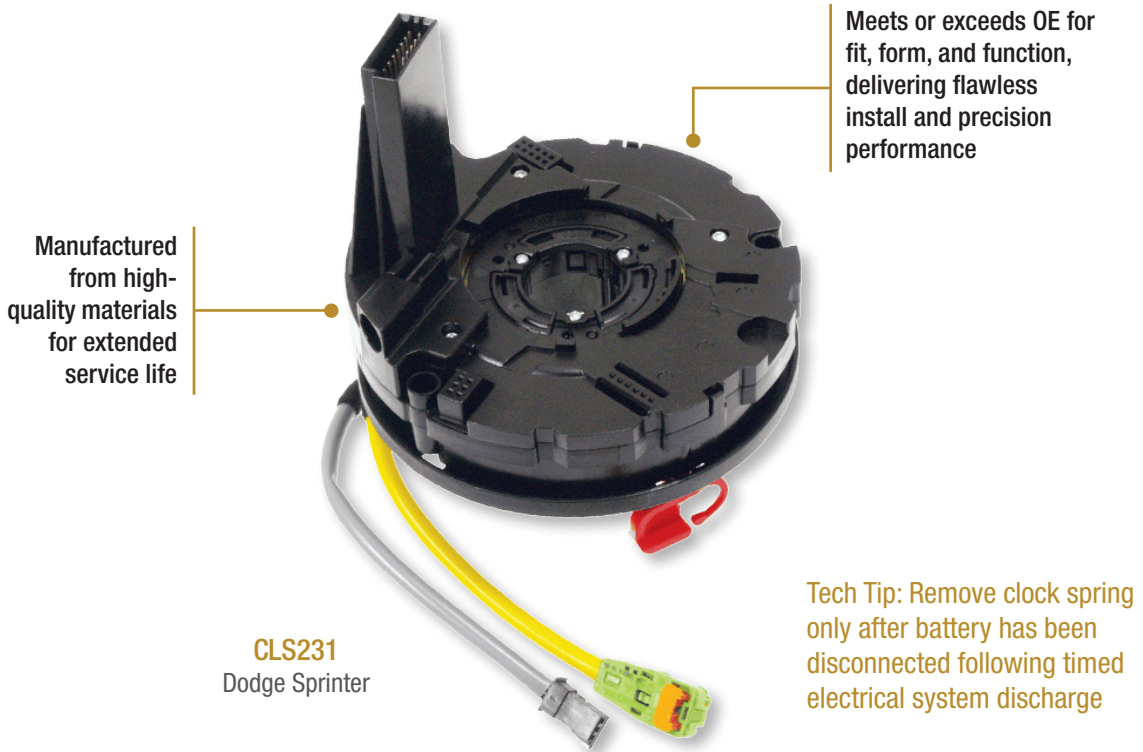
Electrical

BWD® and Intermotor® offer a full line of electrical solutions for key engine components and systems, including airbag clock springs, blower motor resistors, and connectors.



Airbag Clock Springs

An airbag clock spring is an assembly that contains a spirally wound flat ribbon to allow the steering wheel to be turned while maintaining a constant electrical connection to the driver airbag, horn and other electrical steering wheel mounted controls. A defective or failing airbag clock spring will not affect engine operation but will trigger the SRS light indicating compromised vehicle safety. Every BWD® and Intermotor® Airbag Clock Spring is a direct-fit replacement that matches the proper fit, form, and function of the original.



CLS235
Hyundai



CLS279
Toyota



CLS230
Ford

The blower motor resistor controls the electrical current flowing from the fan switch to the blower fan, which allows motorists to set the fan at different speeds. With more than 700 blower motor resistors in the line, BWD® and Intermotor® offer full line coverage for domestic and import applications. To help you restore proper HVAC functions, BWD® and Intermotor® manufacture high-quality replacements that match the fit, form, and function of the original. On top of that, we test them to ensure performance and reliability.

Larger output power device mounted directly to heat sink improves heat dissipation

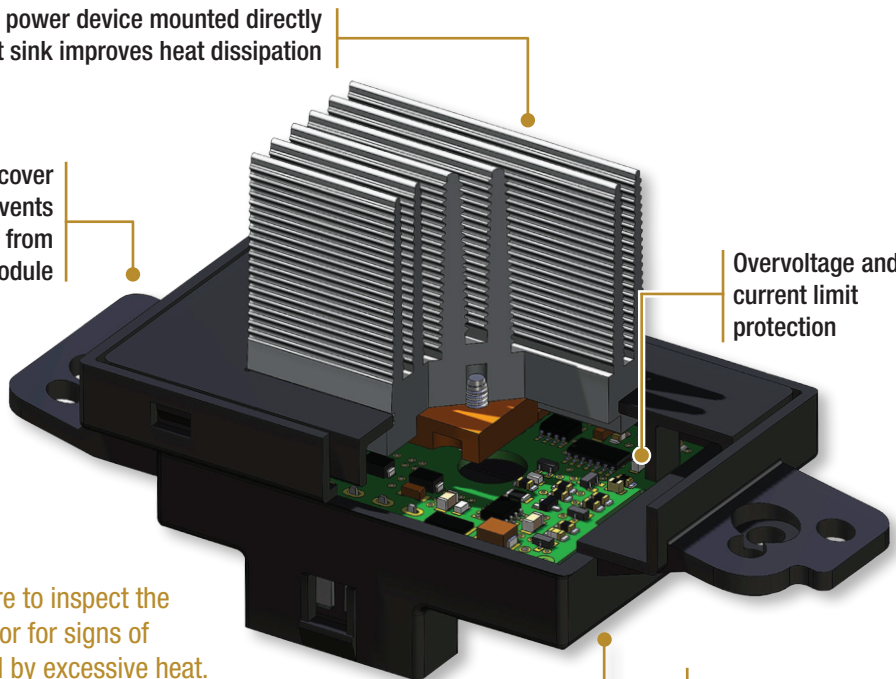
Umbrella cover design prevents condensation from entering module

Overtoltage and current limit protection

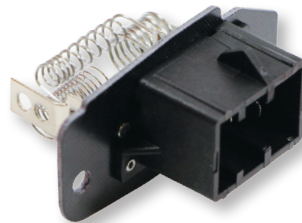
Tech Tip: Be sure to inspect the mating connector for signs of damage caused by excessive heat. If damaged, replace with a premium BWD® or Intermotor® connector.

RU1321
GM

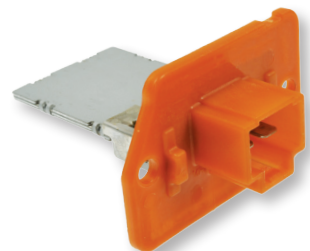
Copper conductors improve conductivity and power dissipation



RU1555
Acura

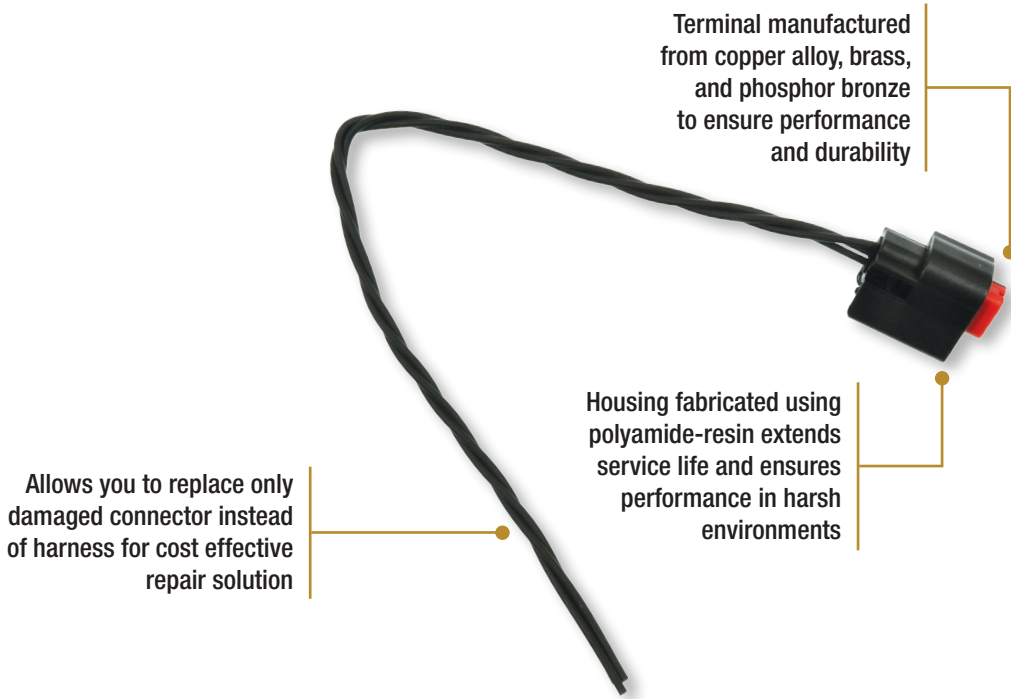


RU1138
Ford

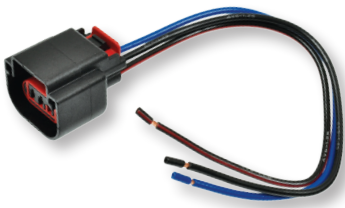


RU1556
Hyundai/Kia

BWD® and Intermotor® offer an ever-expanding line of connectors in more than 300 categories. All of our connectors are manufactured with high-quality materials and tested to match OE fit, form, and function and perform in harsh conditions.



PT2258
Camshaft Sensor Connector
Ford



PT5604
Headlight Connector
Ford



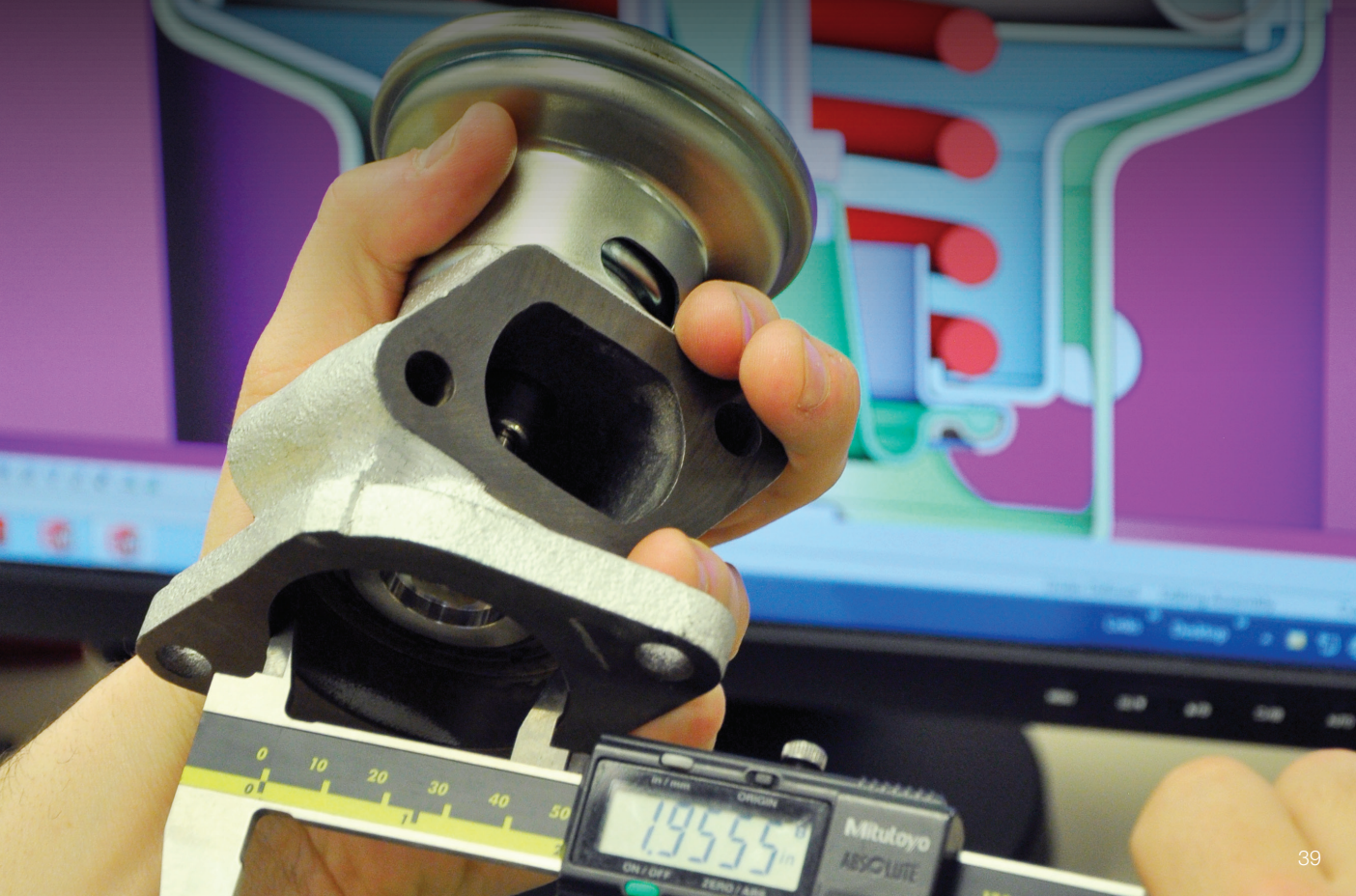
PT1258
Blower Motor Resistor Connector
Dodge/Chrysler



PT2279
Fuel Injector Connector
Honda/Acura

Emission Controls

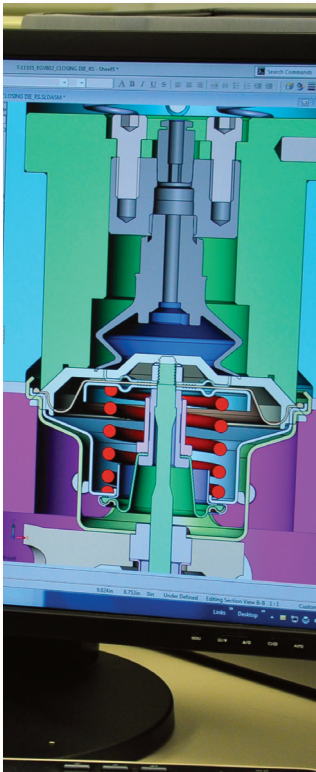
BWD® and Intermotor® give you industry leading support for emission control systems. A complete product offering means complete coverage for all of your emission control needs.



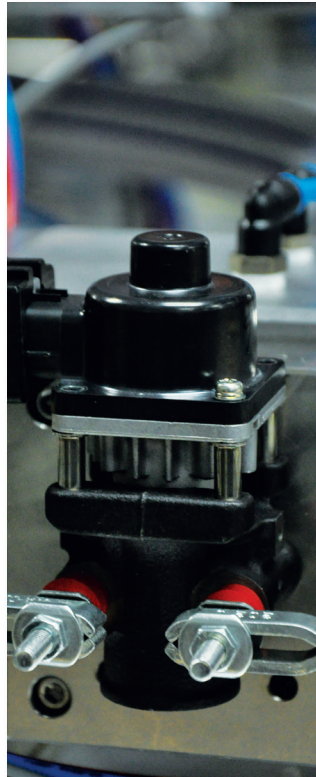
About Emission Controls

As a basic manufacturer of emission components, BWD® and Intermotor® maintain complete quality control throughout the manufacturing process.

Design



Testing



Manufacturing



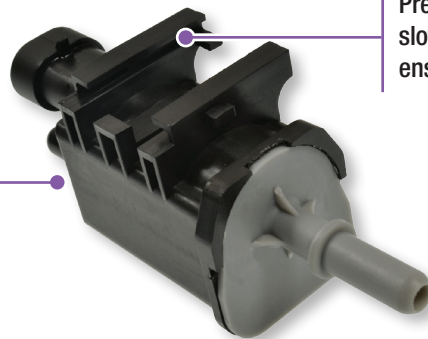
What that means for you

With our expertise and manufacturing processes in place, BWD® and Intermotor® are able to offer high-quality parts for all major emission control systems and evaporative emission control systems. As a result, we provide the comprehensive coverage for domestic and import vehicles that professional technicians need to keep cars running clean.

The Evaporation Emission Control (EVAP) system prevents gasoline vapors from escaping the fuel system and entering the atmosphere. To prevent environmentally harmful leaks, BWD® and Intermotor® offer an expansive line of high-quality EVAP System components, including canister purge solenoids and canister vent solenoids.

Canister Purge Solenoid

High-grade industrial plastic withstands low and high engine temperatures



Precision-machined mounting slot and exact-fit connector ensure trouble-free install

Canister Vent Solenoid

Viton O-rings prevent leaks



Includes connector for direct-fit installation



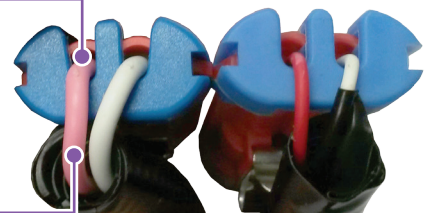
Flexible hose makes installation easier

Competition Comparison

Engineered at our TS14001 and ISO/TS16499-certified facility in Independence, KS, BWD® and Intermotor® Canister Vent Solenoids feature an improved design that outperform our competitor.

Less space means more protection against moisture intrusion

Larger wire increases conductivity to prevent overheating



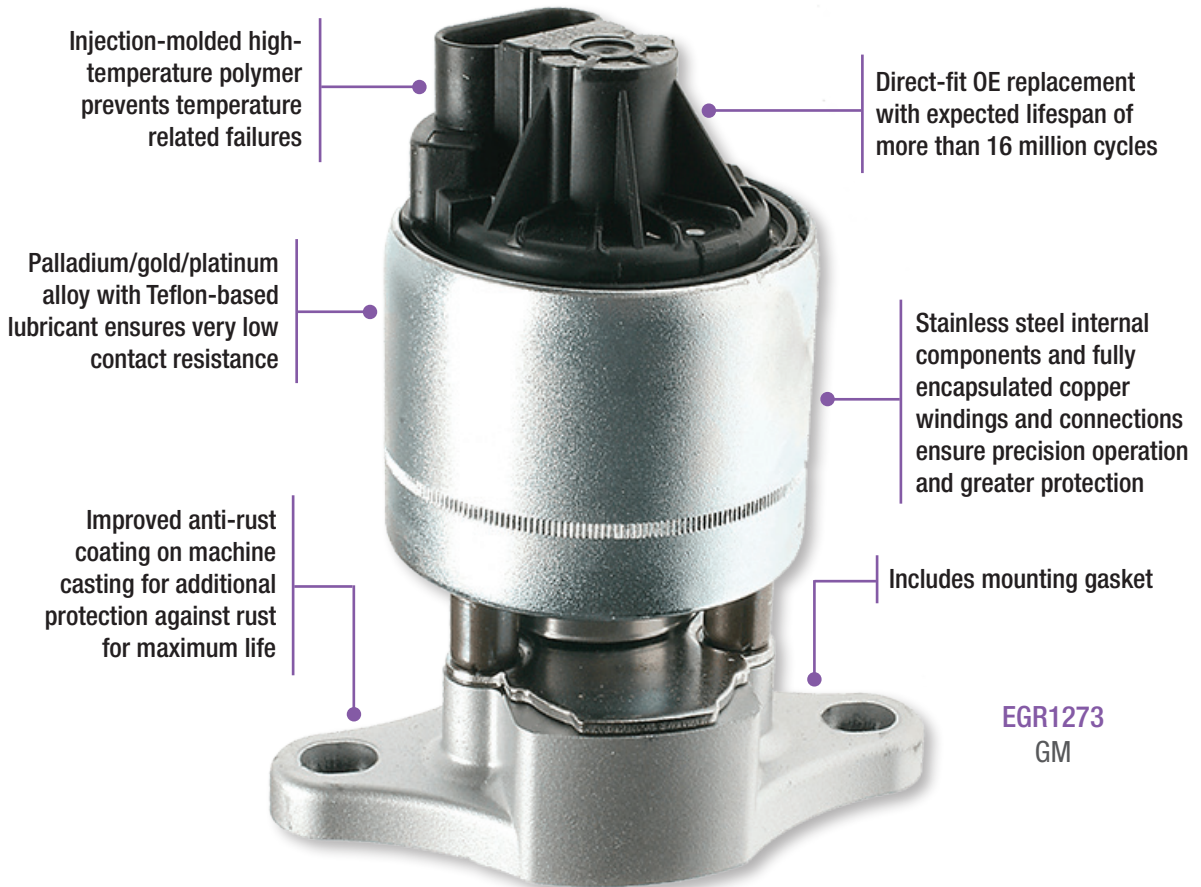
BWD®

Competitor

EGR Valves

To reduce or eliminate the amount of smog-creating pollutants emitted during the combustion process, the EGR valve recirculates a portion of the exhaust back through the process. This results in cooler combustion temperatures, which eliminates the formation of NOx emissions that contribute to air pollution.

Every BWD® and Intermotor® EGR Valve is calibrated for precision performance. To ensure trouble-free operation, all BWD® and Intermotor® EGR Valves must pass comprehensive quality testing, including computer-controlled bench testing for resistance, leakage, and response and flow rates.

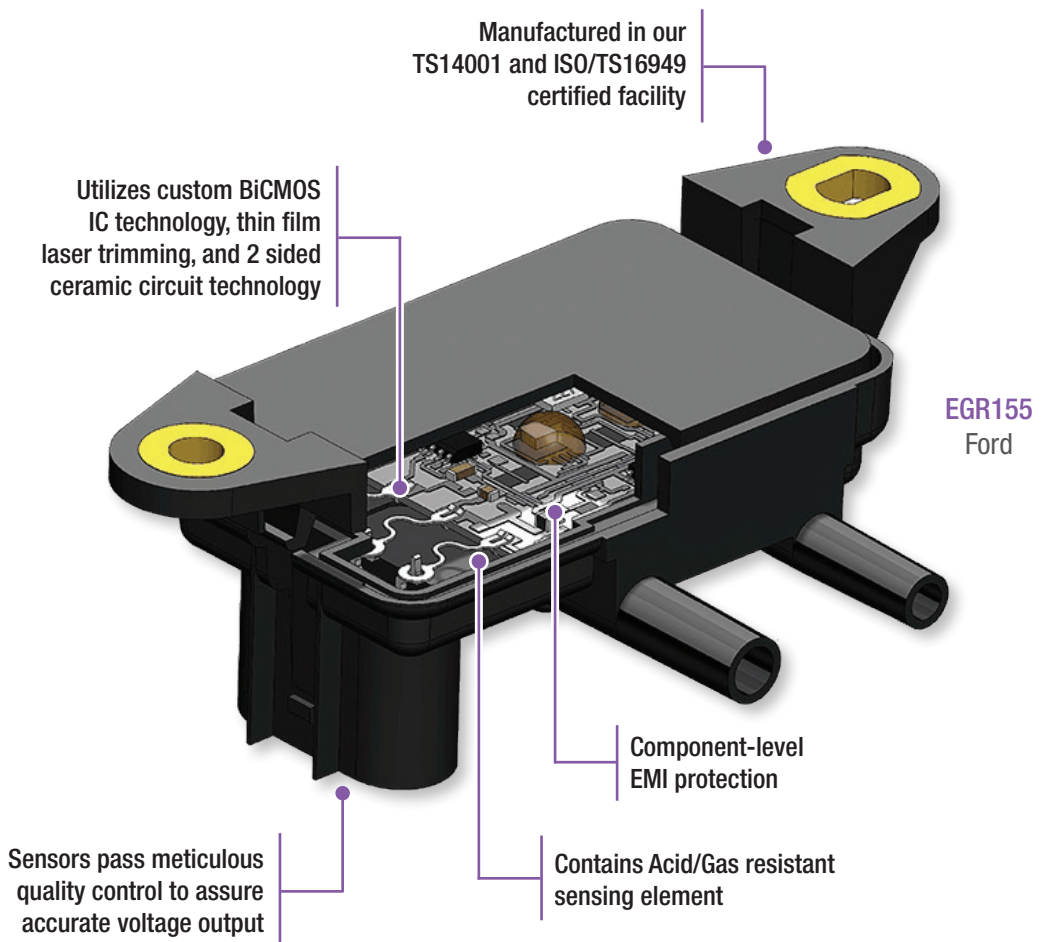


Related Part: For many popular Dodge, Chrysler, Plymouth, and Jeep vehicles, TechSmart offers a line of EGR Transducers that allows you to replace only the faulty component instead of the entire EGR assembly.

The EGR position sensor detects the movement and position of the EGR valve pintle. The EGR pressure sensor detects exhaust gas flow through the EGR passage.

Manufactured at our TS14001 and ISO/TS16949 certified facility, BWD® and Intermotor® EGR Position and Pressure Sensors use the finest components, and every sensor must pass meticulous quality control to assure that each EGR sensor's voltage output measurement will always be accurate. Each sensor undergoes a rigorous end-of-line test validating output voltages to exacting specifications for reliable, trouble-free operation.

EGR Pressure Feedback Sensor

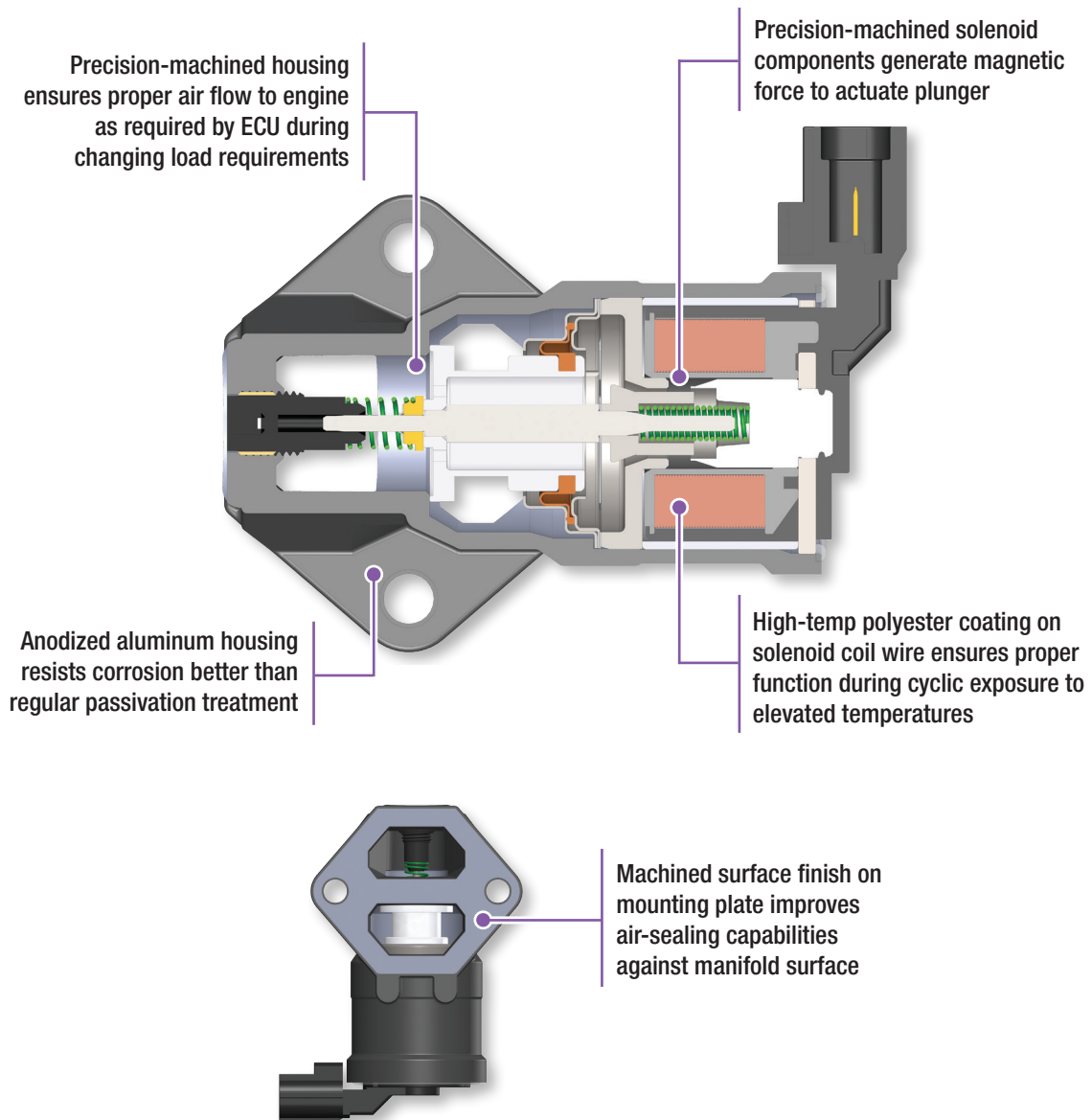


Tech Tip: While you're replacing the sensor, be sure to look for deteriorating EGR pressure feedback hoses. If damaged, replace them with our M40001 EGR Pressure Feedback Hose Kit.

Idle Air Control (IAC) Valve

The idle air control (IAC) valve is located on the throttle body of fuel-injected engines, where it works with the vehicle's ECU to electrically regulate airflow to the engine to ensure smooth idling.

BWD® and Intermotor® Idle Air Control (IAC) Valves are engineered and manufactured at our ISO/TS16949-certified facilities in Greenville, SC, and Reynosa, Mexico, respectively. A key aspect of the manufacturing process is the load testing, which makes sure each actuator delivers a greater force than actual load.



Fuel Injection

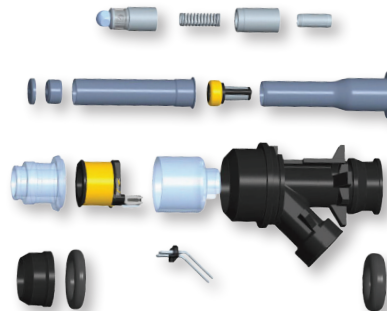
BWD® and Intermotor® offer full coverage for fuel injection systems including quality-manufactured GDI, MFI, G Series, and diesel fuel injectors.



About Fuel Injection

The Aftermarket Leader for Fuel Injection and Fuel Systems

Vehicle performance and drivability are enhanced when a fuel injector delivers up to spec. That's why BWD® and Intermotor® offer full coverage for import and domestic vehicles, with an unsurpassed range of premium-quality fuel injectors and fuel system components.



What Makes Our Fuel Injectors Different

To differentiate our fuel injectors from the competition, we subject our fuel injectors to the following quality-control steps:

Flow Matching

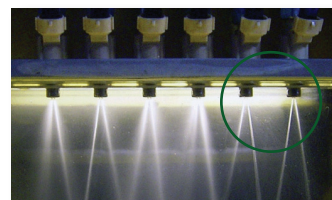
Our fuel injectors are designed to meet stringent requirements for both Dynamic and Static flow rates. Injectors that meet both tolerances prevent rough idle, high fuel consumption, and poor emissions.

Spray Pattern Matching

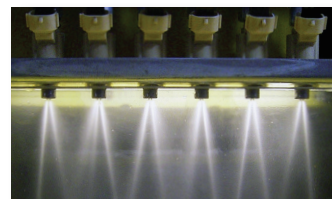
We use multiple tip shapes for pintle design and multiple inserts for disc design to match OE-style spray patterns. As a result, our injectors ensure positive control of fuel delivery for maximum performance and fuel economy.

Do the Job Right: Replace Fuel Injectors in Sets

When one fuel injector fails (especially on a vehicle with higher mileage), you should replace all of the injectors with a full new set. That's because one worn out fuel injector means the other injectors have been subjected to the same extreme wear and tear. Plus, if you only replace the worn out injector, you risk creating fuel imbalance, because high mileage injectors have unmatched spray patterns that increase fuel consumption whereas new injectors have evenly matched spray patterns that increase fuel economy. In the long run, the most cost-effective repair is to replace the full set of injectors.

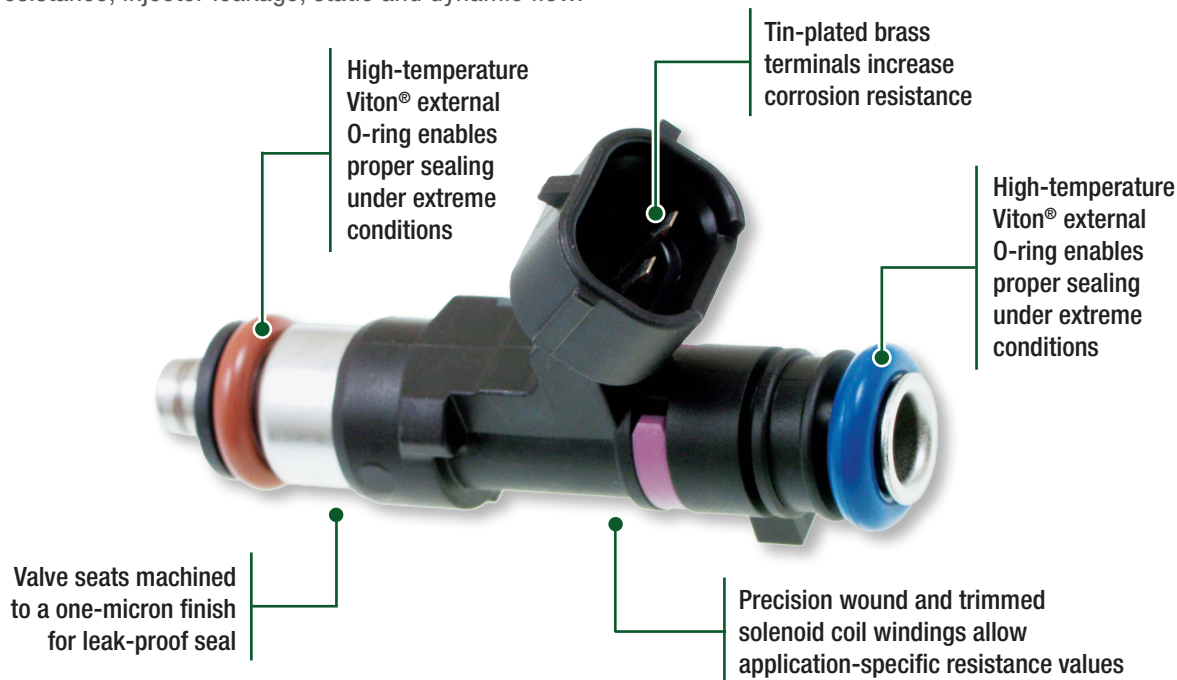


High Mileage Injectors



New Injectors

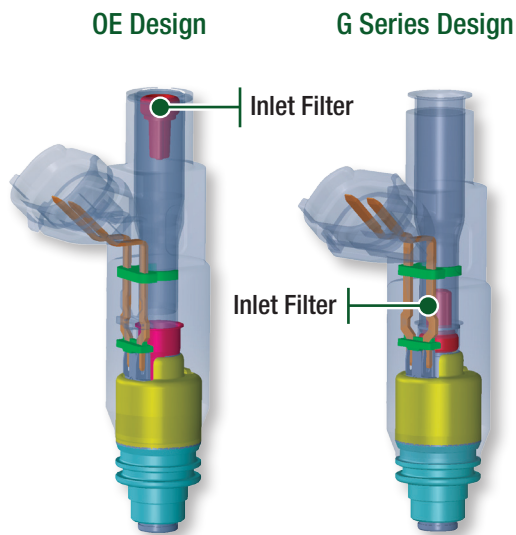
Our fuel injectors are flow-matched to each specific application, with advanced laser-drilled metering holes that deliver precise flow and spray patterns for proper injector performance under all conditions. They're manufactured in our TS16949-certified facility in Greenville, SC, and 100% tested for coil resistance, injector leakage, static and dynamic flow.



Improved G Series Design


During the OE design process, the inlet filter is installed at the end of the assembly process. You can tell because the filter is located at the top of the fuel tube inlet. The problem with the inlet filter being added at the last step of the assembly process is that it increases the risk of contaminants being introduced.

To eliminate the potential for contaminants on BWD® and Intermotor® G Series Injectors, we add the filter in the inlet tube during the middle of the assembly process. The result of the filter location change may alter the appearance of the inlet tube when seen from above, but it does not affect the function of the injector.



Gasoline Direct Injection (GDI)

With GDI becoming more popular in late-model applications, BWD® and Intermotor® are leading the way with coverage and quality. BWD® and Intermotor® advanced flow-matched Gasoline Direct Injection (GDI) injectors promote smooth engine operation and balanced fuel delivery, reducing overall fuel consumption and harmful emissions.

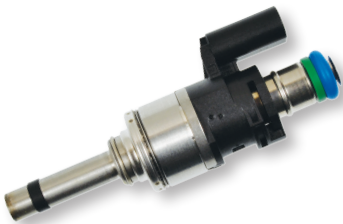


Stainless steel calibration slide and spring assembly prevents corrosion within fuel control body leading to extended service life

High-temp Viton® O-rings enable prolonged sealing of injector under extreme heat conditions

67600 GM

Precision wound and trimmed solenoid windings allow computer to command efficient fuel delivery



67842
Ford



67783
BMW



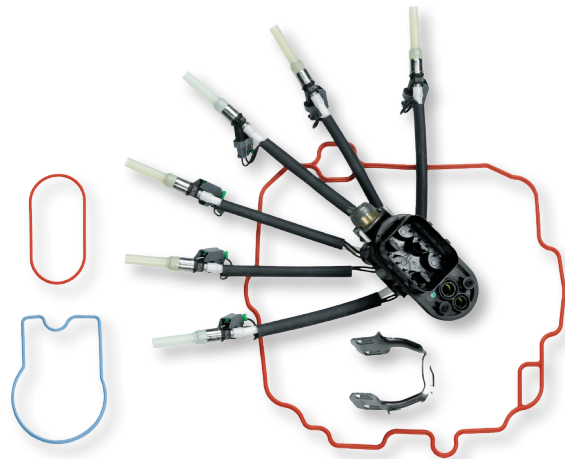
67815
Honda

GM Vortec Injectors

GM's Vortec engines come with a Sequential Port Injection System (SCPI). BWD's Multi-Port Fuel Injection (MFI) system has several advantages over the original Sequential Central Port Injection (SCPI) system, including port fuel delivery and high reliability, better hot starts and reduced vapor emissions, and faster prime on hot restarts.



OE SCPI Injection System



63885

BWD's Multi-Port Fuel Injection (MFI) System
GM V6 4.3L

BWD's MFI Advantages

- Improved spray injector nozzle design with longer seat and no valve ball reduces deposit buildup that can cause clogs
- Built to last up to 10 yrs/100,000 miles – an improvement over the SCPI system
- Enhanced pressure control at low recirculation rates
- Improved hot fuel handling over SCPI system
- Advanced pulse-to-pulse precision, low voltage performance at open throttle
- Improved sealing over SCPI system
- Better transient response over SCPI system
- Low vacuum sensitivity
- Low heat transfer to fuel
- Faster temperature stabilization over SCPI system
- Lack of poppet valve eliminates problem of deposit buildup
- Low heat transfer to fuel tank

Tech Tip: For successful installation, lubricate injector tips and O-ring seals with transmission assembly gel, petroleum jelly, or even clean engine oil. Do not use silicone.

Designed and Built in the USA

BWD® and Intermotor® injectors are designed and built at SMP's vertically integrated TS16949-certified manufacturing plant in Greenville, SC. As a result, we're able to yield fuel injectors that meet our strict quality control standards. In addition to designing and engineering, we subject our injectors to extensive end-of-line and life cycle testing.



Passing the Test

To make sure every fuel injector meets our strict standards for precision quality, enhanced performance, and extra durability, BWD® and Intermotor® perform initial life-cycle validation and 100% end-of-line testing. What's more, we subject our fuel injectors to more than 35 different tests and inspections. Here are just a few of the elements and components that we test and inspect:

- Body Color
- Body Style
- Coil Resistance
- Connector Shape
- Dynamic Flow Rate
- Endurance
- Humidity
- Linearity
- Shock Load
- Spray Pattern
- Static Flow Rate
- Thermal Cycles
- Vibration
- and more!



What Our Manufacturing and Testing Means for You

Precision quality, enhanced performance, extra durability, and 100% consistent product reliability.

In addition to offering precision-manufactured fuel injectors and quality-remanufactured diesel fuel injectors, BWD® and Intermotor® offer an array of high-quality fuel injection components for your fuel injection system repairs, including:

Fuel Pressure Sensor

- Utilizes custom BiCMOS IC technology, thin film laser trimming, and two-sided ceramic circuit technology
- Acid and gas-resistant sensing element, and component level EMI protection
- Temperature sensing device accurately controls fuel injection performance



FPS505
Ford

Fuel Pressure Regulator

- Precision-engineered for proper fuel delivery and engine performance
- Application-specific for perfect fit and form
- Robust engineering design for greater resistance to leakage



24098
Hyundai/Kia

Fuel Pressure Damper

- 100% end-of-line pressure testing to ensure quality
- Thick, reinforced washers prevent housing leaks and premature failure



32546
Mercedes-Benz

O-Ring Kits

- Assortment of kits to complement fuel injection repairs on domestic and import applications
- Made from high-quality materials to ensure performance and longevity



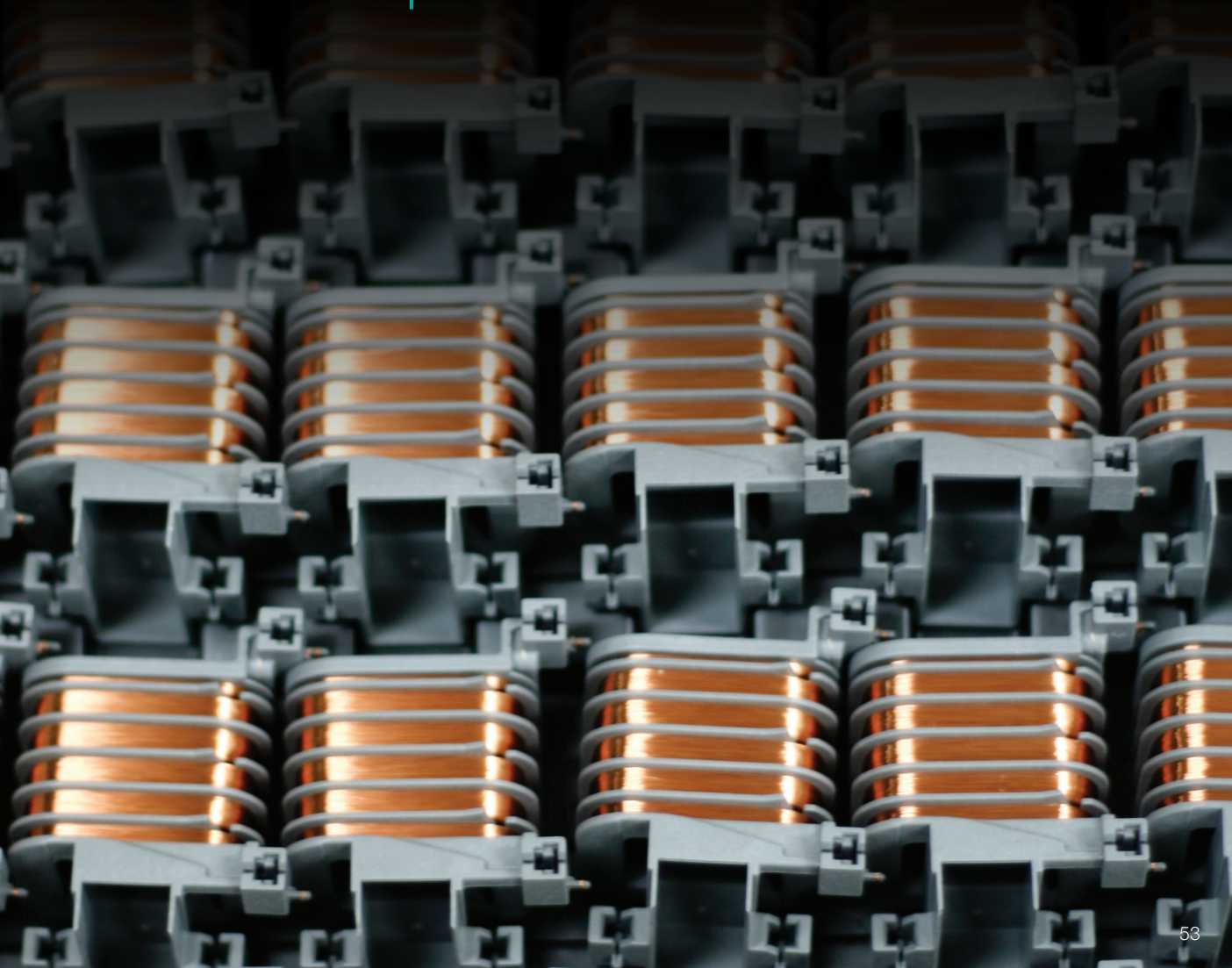
274801
Chevy/GM



274832
Ford

Ignition Coils

BWD® and Intermotor® offer an expansive selection of quality ignition components, including Coil-On-Plugs, Cassette Coils, and Coil Packs.



About Ignition Coils

Quality Coils, Comprehensive Coverage



As the aftermarket leaders in Ignition Coils, BWD® and Intermotor® offer full line coverage for all makes and models, with the trusted quality and performance that only comes with over 96 years of experience. This product category will be at the forefront for years to come, and BWD® and Intermotor® are leading the way with an expansive selection of quality ignition components, including cassette coils, coil-near-plugs, coil packs, and coil-on-plugs.

Elite Manufacturing and Testing

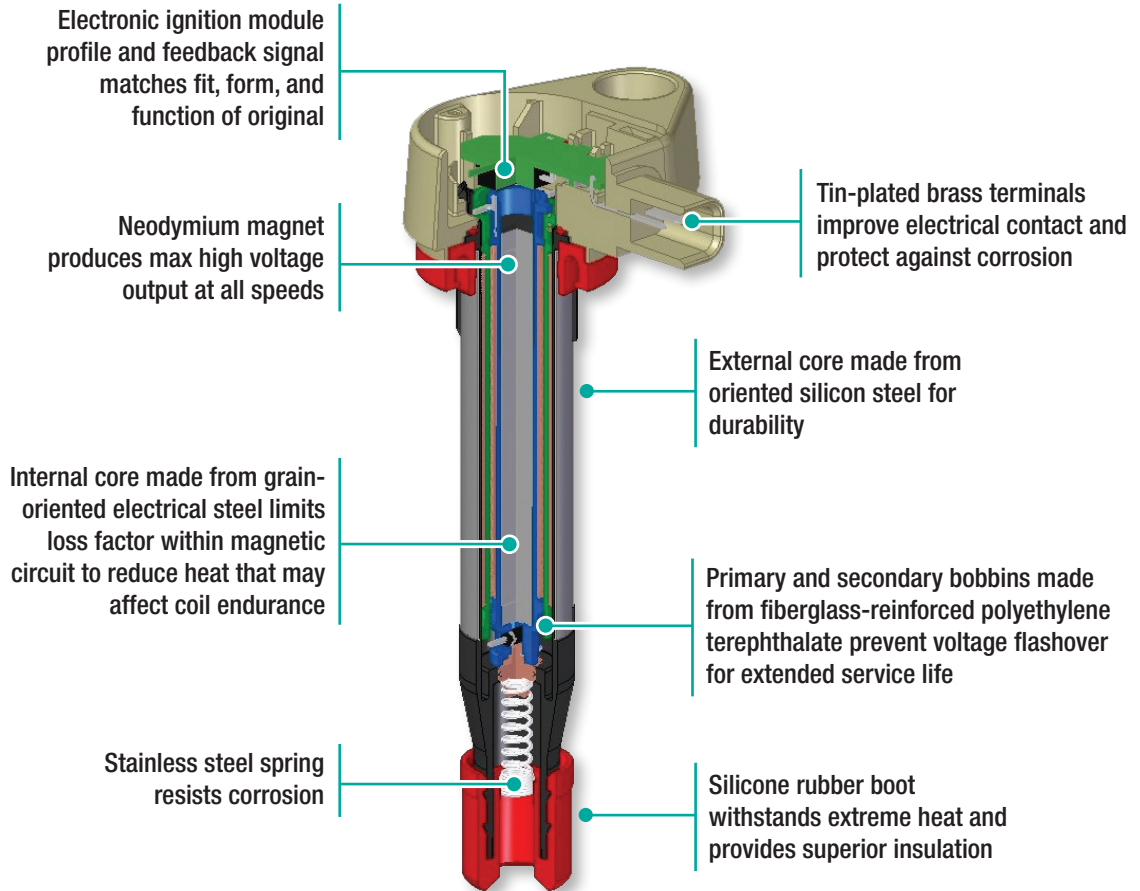
BWD® and Intermotor® engineer and manufacture high-quality ignition coils and ignition components at SMP's 60,000 sq. ft. facility in Bialystok, Poland. Highlights of the TS16949-certified facility include lean manufacturing methods and vertically integrated manufacturing processes that include multi-spindle winding, injection molding, potting, curing, and welding. To ensure quality, all products manufactured at the facility undergo a full spectrum of measurement and life testing in addition to a full range of environmental analysis that includes thermal shock, thermal cycling, salt spray, vibration, and storage tests.

Do the Job Right: Replace Coils in Sets

When one ignition coil fails (especially on a vehicle with higher mileage), you should replace all of the ignition coils with a full, new set. That's because one worn out ignition coil means the other coils have been subjected to the same extreme wear and tear. In the long run, the most cost-effective repair is to replace the full set of ignition coils.

As engine technology evolves, coil-on-plug technology will continue to play an increasingly important part of ignition systems. One such technology is the pencil coil. BWD® and Intermotor® are leading the way with quality parts and exceptional coverage for this growing category.

Pencil Coil



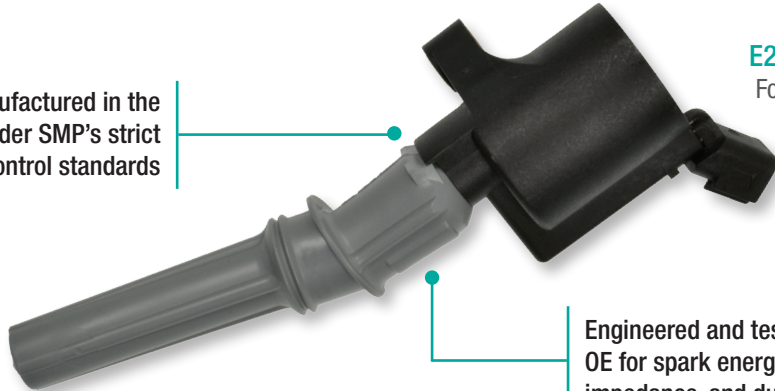
E745
Honda/Acura

Tech Tip: If there's been a failure such as a short, we recommend replacing the spark plug while you're replacing the pencil coil.

Coil-on-Plug (COP) Breakdown

A coil-on-plug is designed to perform the functions of the ignition coil (creating the spark energy) and the spark plug wire set (containing and delivering the high voltage energy to the spark plug). To ensure proper function, BWD® and Intermotor® Coil-on-Plug Assemblies feature premium-quality components.

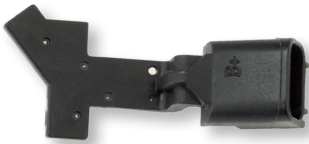
Manufactured in the USA under SMP's strict quality-control standards



E262
Ford

Engineered and tested to match OE for spark energy output, impedance, and durability

A Closer Look at Our Coil-on-Plug Components



Coil Connector

Designed using advanced thermoplastics to ensure proper connection and resist fractures caused by heat and thermal cycling



Boot & Spring Assembly

High-temp boot prevents high-voltage leaks, while stainless steel spring with internal ferrite noise suppressor prevents radio frequency interference (RFI)



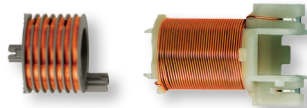
Coil Housing

High-impact material bonds extremely well to epoxy to ensure longer life in all operating conditions



Core

Internal neodymium permanent magnet surrounded by grain-oriented magnetic-laminated steel maximizes high-voltage output at all speeds



Primary & Secondary Bobbins with Winding

Primary (25 gauge) and Secondary (43 gauge) copper wire ensure high-voltage availability for peak performance while reinforced bobbins prevent voltage flashover for extended service life



Isolator

Manufactured using high-voltage resistant thermoplastics to prevent premature coil failure

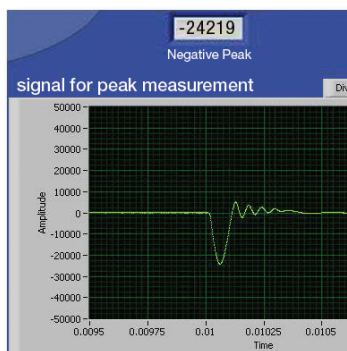
We performed an extensive engineering analysis of OE DG500 and DG508 to BWD® coils. The engineers measured winding resistance, inductance and output voltage, spark energy, waveform peak voltage and ringing, as well as a complete physical and sectioned comparison to OE.

WINDING RESISTANCE / INDUCTANCE AND OUTPUT VOLTAGE / SPARK ENERGY							
Part No.	Primary		Secondary		Output Voltage	Spark Energy	
	Resistance (mohms)	Inductance (mH)	Resistance (kohms)	Inductance (H)	50pf (Peak kV)	60 Hz (mV-S)	60 Hz (mJ)
BWD® E261	492	1.53	5.36	9.59	25.2	3.70	29.6
BWD® E262	489	1.49	5.28	9.47	25.2	3.74	29.9
Average BWD®	491	1.51	5.32	9.53	25.2	3.72	29.8
OE DG500	515	1.63	5.55	8.61	24.4	3.72	29.8
OE DG508	511	1.58	5.50	8.19	24.2	3.69	29.5
Average OE	513	1.61	5.53	8.40	24.3	3.71	29.7

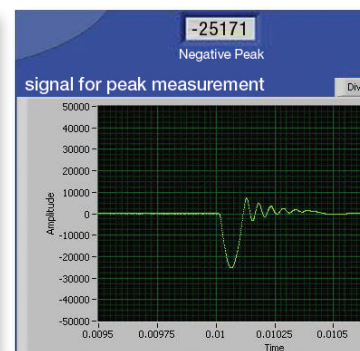
The Findings

BWD® Ignition Coils have the fit, form, and function of the originals they replace, plus 100% end-of-line production testing. BWD® coils also provide an improved secondary winding design (additional winding bays) that helps prevent internal arcing and high-voltage breakdown.

Waveform Test Results



OE



BWD®

How BWD® Coils Compare to the OE

- 3.7% higher output voltage
- Equal spark energy
- Roughly 1000 volts higher peak output voltage in waveform testing
- Longer spark duration resulting in more energy supplied to spark plugs

Additional Ignition Coils and Components

In addition to traditional Coil-on-Plugs, BWD® and Intermotor® offer an array of other high-quality coils and components to help with your ignition repairs. Here are just a few examples:

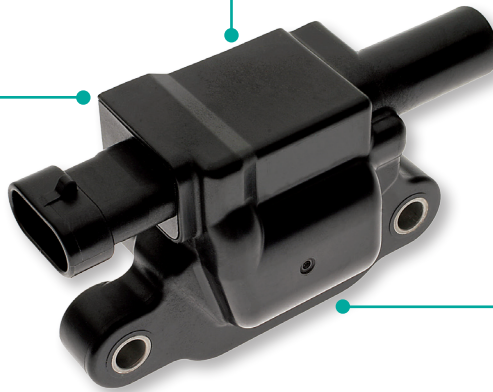
Coil-Near-Plug (CNP)

Neodymium in core creates strong magnetic field and produces max high-voltage output at all speeds

E893
GM

High-dielectric epoxy injected into case and pulled into vacuum to eliminate air pockets and prevent moisture intrusion or thermal breakdown

Reinforced bobbins prevent voltage flashover for extended service life



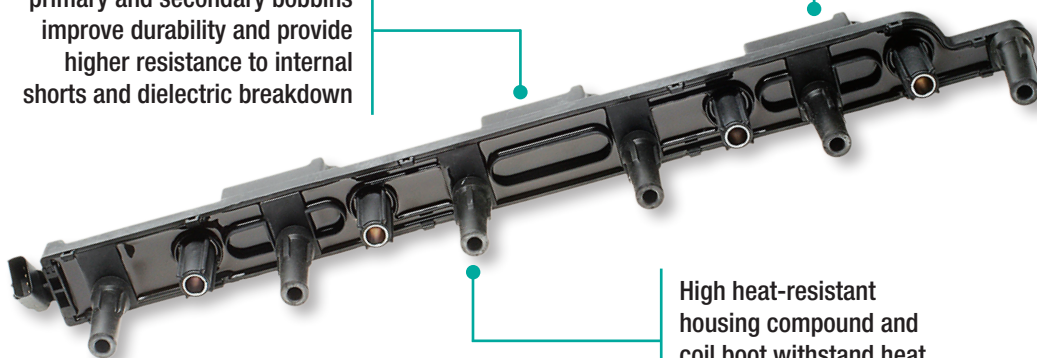
Cassette Coil

100% pure copper windings in primary and secondary bobbins improve durability and provide higher resistance to internal shorts and dielectric breakdown

E239
Jeep

Neodymium in core creates strong magnetic field and produces max high-voltage output at all speeds

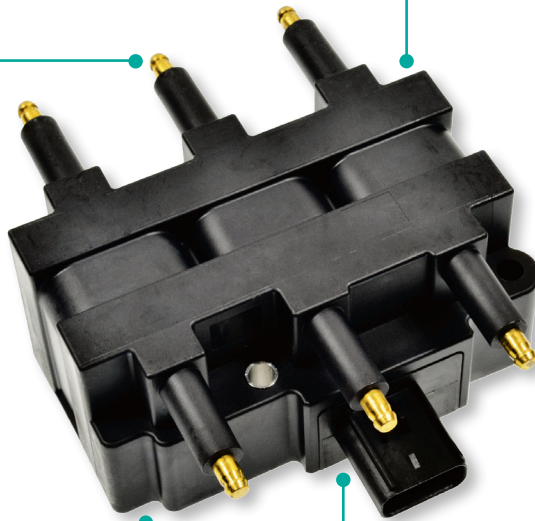
High heat-resistant housing compound and coil boot withstand heat stress for longer durability



Coil Pack

Full E-Lam core of silicon steel and solid brass high-voltage terminals protects against corrosion

Housing made from thermoplastic compounds to withstand heat stress



E887
Chrysler/Dodge

100% pure copper windings in primary and secondary bobbins improve durability and provide higher resistance to internal shorts and dielectric breakdown

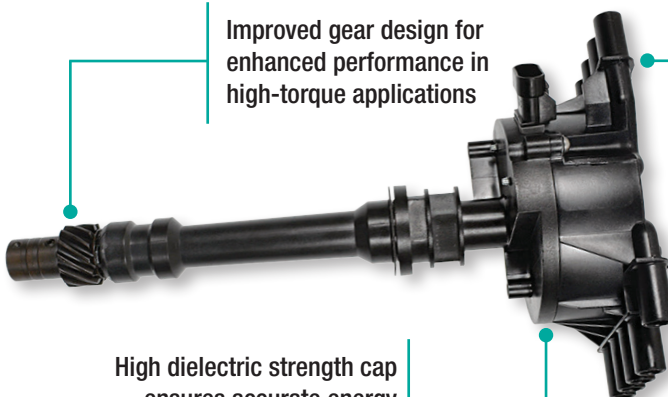
Premium epoxy formula ensures performance, long service life, and better heat dissipation

Distributor Assemblies

The distributor assembly sends high voltage from the ignition coil to the spark plugs. TechSmart's NEW, never remanufactured, Distributor Assemblies are designed to match the fit, form, and function of the originals they replaced.

Improved gear design for enhanced performance in high-torque applications

100% NEW, not remanufactured, to ensure performance



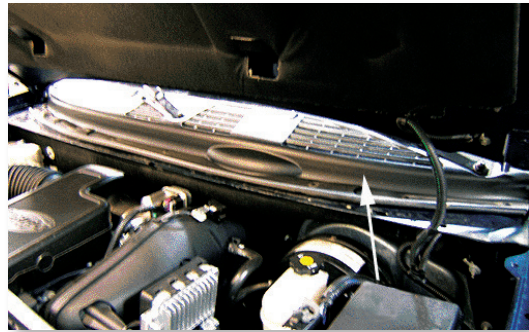
Z95001
GM

High dielectric strength cap ensures accurate energy transfer and spark timing

SAE J1171 Marine certified

A Common Misdiagnosis

On some GM models, water intrusion will cause premature failure of the coil and spark plugs. But it's not a coil problem. Instead, the water is seeping past the engine cam cover and collecting below the coils in the spark plug wells of the cylinder head, which can result in a possible misfire.



Water seeping past the engine cam cover

Failure Symptoms

To determine if water intrusion has occurred, check for the following common failure symptoms:

- Rough idle
- Illuminated MIL/SES light following rain shower or car wash

If a customer has experienced either of these symptoms, check for possible DTC codes P0300 through P0306. Also, look for a white chalk-like buildup on the inside and/or outside of the spark plug boots. If buildup is detected, the coils are damaged.

The Solution

First, replace the damaged coil with BWD's E255 ignition coil, which is a high-quality replacement that will restore performance and ensure proper sealing. Then, to prevent the condition from reoccurring, replace the Air Intake Plenum (AIP) seal with a replacement seal that redirects the water away from the engine cam cover.



E255

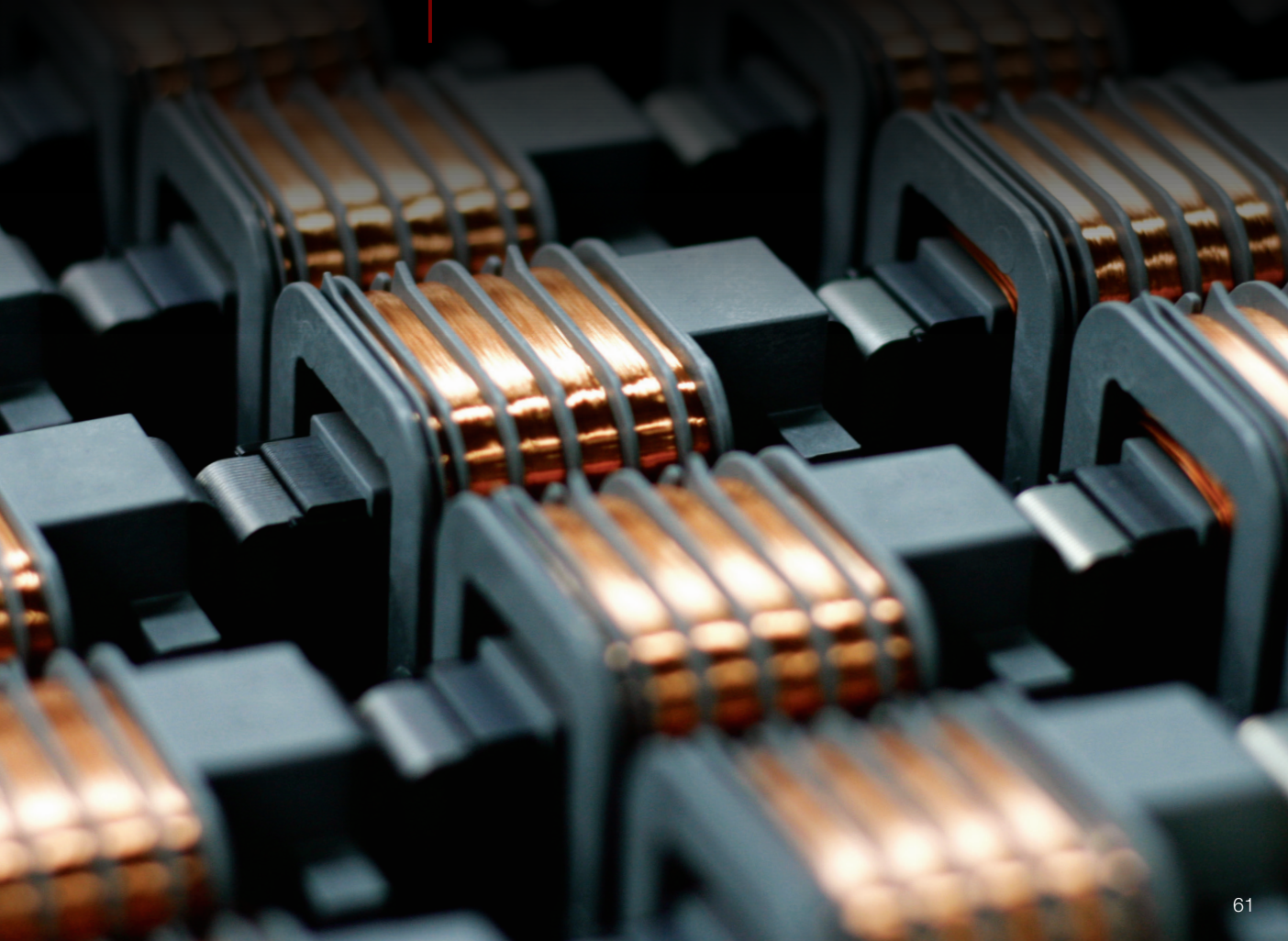
Tech Tip: If only the gasket needs to be replaced, check out our F10001 Ignition Coil Maintenance Kit.

F10001



Intermotor[®]

With a complete engine management import line known for its coverage, quality, and commitment to exact-match fit, form, and function, it's no wonder Intermotor[®] is the Import Leader by Design.



Intermotor® Covers the Import World

With more than 16,000 parts, Intermotor® is a complete engine management import line that's recognized as the leader in coverage and quality. First, let's look at the coverage. Here's just one example of the type of coverage that Intermotor® provides for import nameplates:

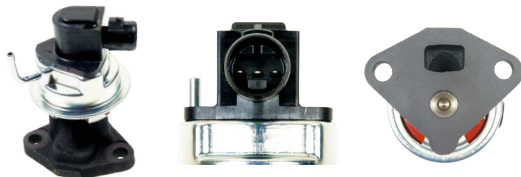
Coverage for 2010 Hyundai Elantra

- A/C Ambient Air Temperature Sensor
- A/C Condenser Fan Motor Relay
- A/C Control Relay
- A/C Control Relay Connector
- ABS Speed Sensor
- Ambient Air Temperature Sensor
- Blower Motor Resistor
- Brake Master Cylinder Fluid Level Sensor
- Camshaft Sensor
- Camshaft Sensor Connector
- Canister Purge Solenoid
- Canister Purge Solenoid Connector
- Canister Vent Solenoid
- Clock Spring
- Clutch Starter Safety Switch
- Coolant Fan Relay
- Coolant Temperature Sensor
- Crankshaft Sensor
- Crankshaft Sensor Connector
- Fog Lamp Relay
- Fog Lamp Relay Connector
- Fog Lamp Switch
- Fuel Injector - MFI - New
- Fuel Pressure Regulator
- Fuel Pump Relay
- Fuel Pump Relay Connector
- Hazard Flasher
- Headlamp Wiring Harness
- Headlight Dimmer Switch
- Headlight Relay
- Headlight Relay Connector
- Headlight Switch
- Horn Relay
- Horn Relay Connector
- HVAC Door Actuator
- Idle Air Control Valve
- Ignition Coil
- Ignition Starter Switch
- Knock Sensor
- MAP Sensor
- Oil Pressure Light Switch
- PCV Valve
- Power Window Switch
- Spark Plug Wire Set
- Starter Relay
- Stoplight Switch
- Stoplight Switch Connector
- Throttle Position Sensor
- Throttle Position Sensor Connector
- TPMS - OE Match Sensor
- TPMS - QWIK-SENSOR™
- TPMS - Service Kit
- Transmission Input Sensor
- Transmission Output Sensor
- Transmission Output Sensor Connector
- Turn Signal Switch
- Variable Valve Timing (VVT) Actuator
- Vehicle Speed Sensor
- Vehicle Speed Sensor Connector
- Windshield Wiper Switch

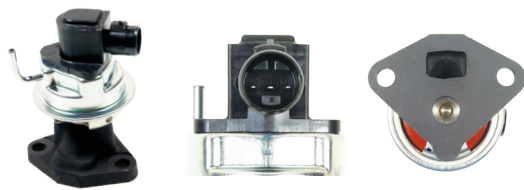


In addition to providing comprehensive coverage, Intermotor® has an unrivaled commitment to exact-match fit, form, and function. With TS16949-certified manufacturing facilities and design centers around the globe, Intermotor® is able to utilize the most advanced processes and methodologies to design, engineer, and manufacture parts that will always meet or exceed the original and, more important, perform to our demanding standards.

Acura Exact-Match EGR Valve



Intermotor EGR1779



Acura 18011-P5G-A00

Volkswagen Exact-Match Fuel Injector



Intermotor 67146



Volkswagen 021 906 031D

Saab Exact-Match Crankshaft Sensor



Intermotor CSS946



Saab 55 557 326

Toyota Exact-Match Ignition Coil-on-Plug



Intermotor E788

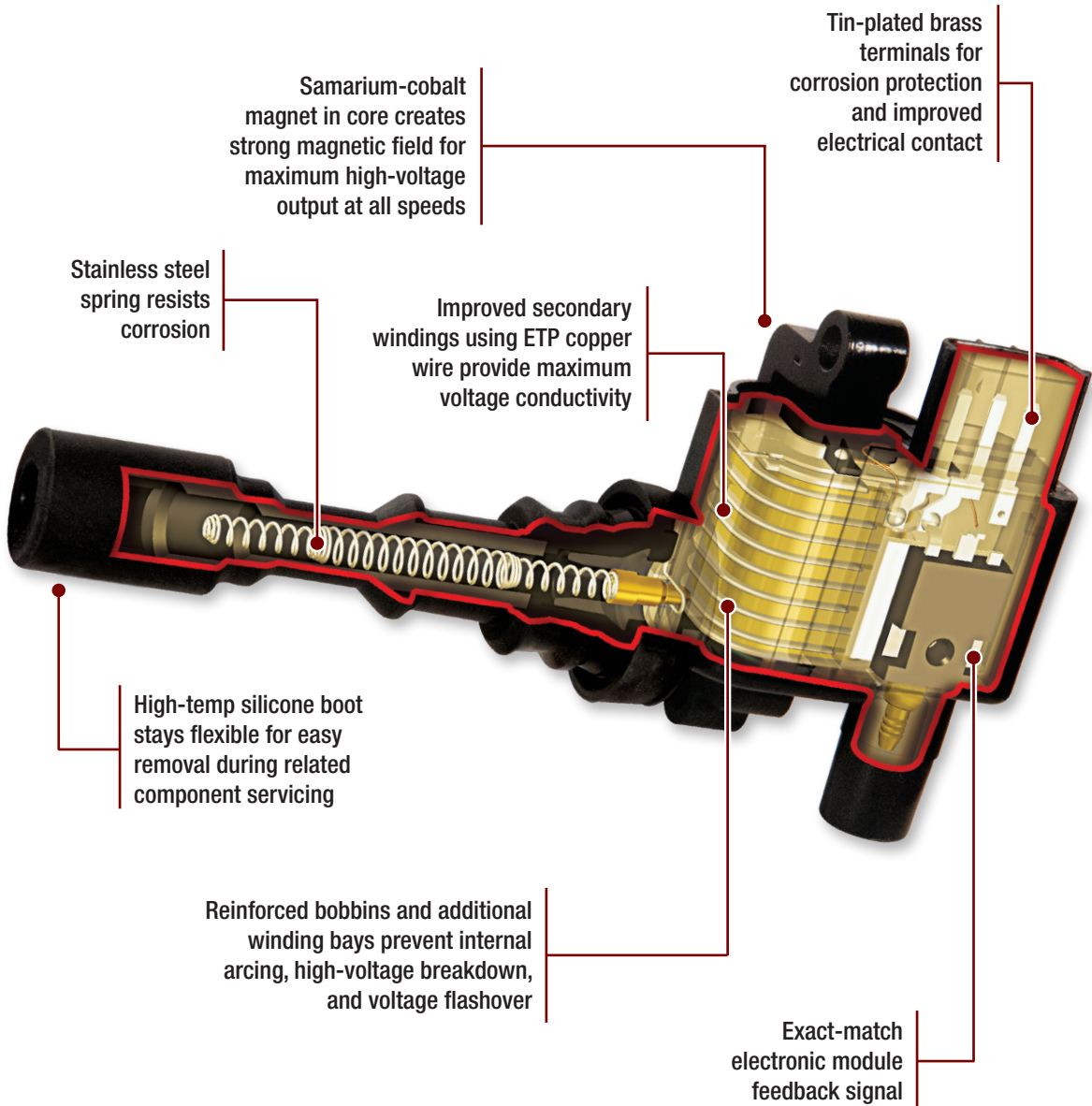


Toyota 90080-19027

Coil-on-Plug Assembly

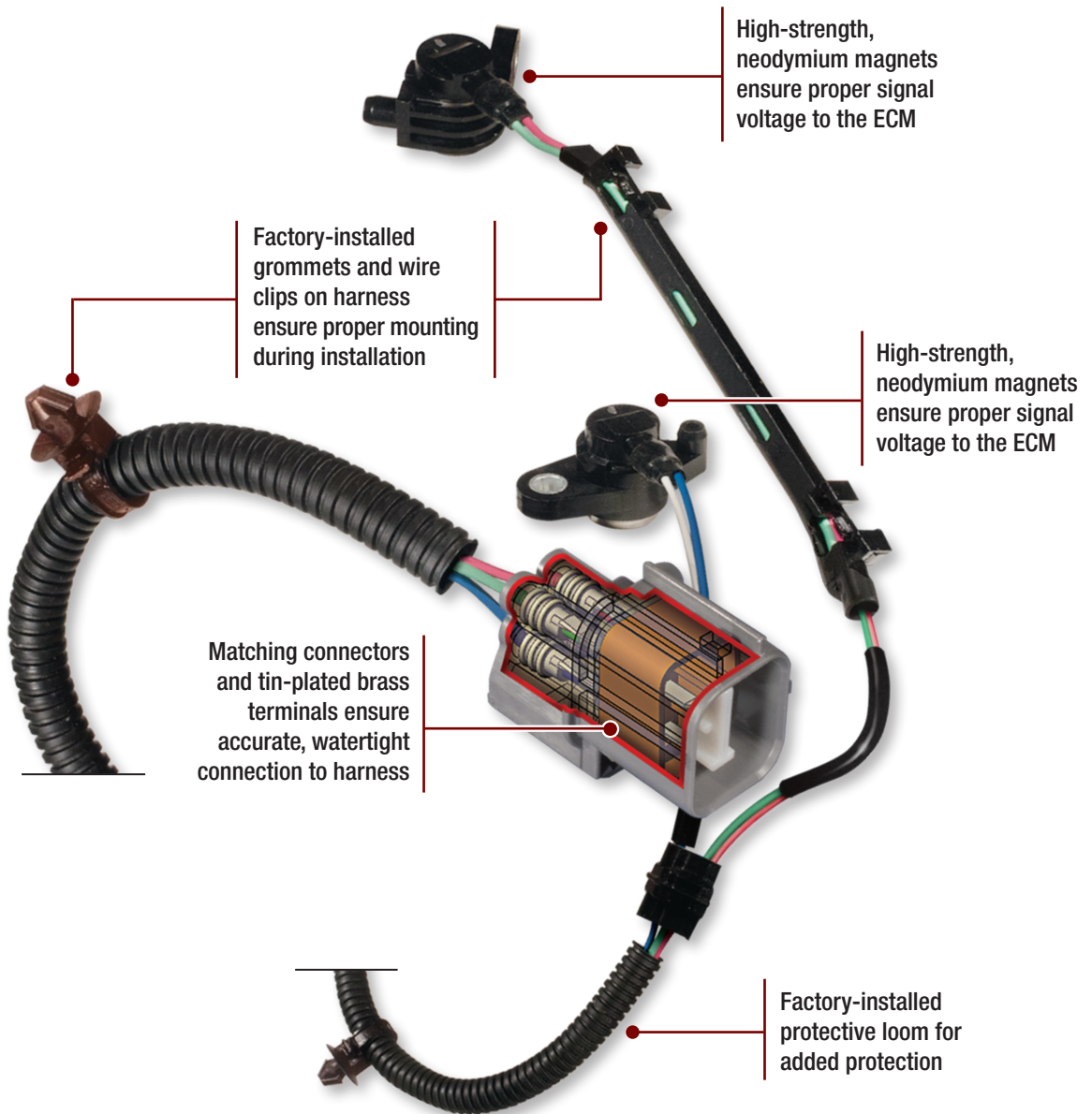
Designed to Take the Heat

Manufactured in SMP's TS16949-certified facility in Bialystok, Poland, our specially formulated epoxy is high temperature shock-resistant to handle rapid changes in engine temperature and prevent cracking or coil damage. To ensure our epoxy bonds with the coil housing and bobbins, our unique process eliminates air pockets and prevents moisture intrusion and thermal breakdown.



Designed for Perfect Timing

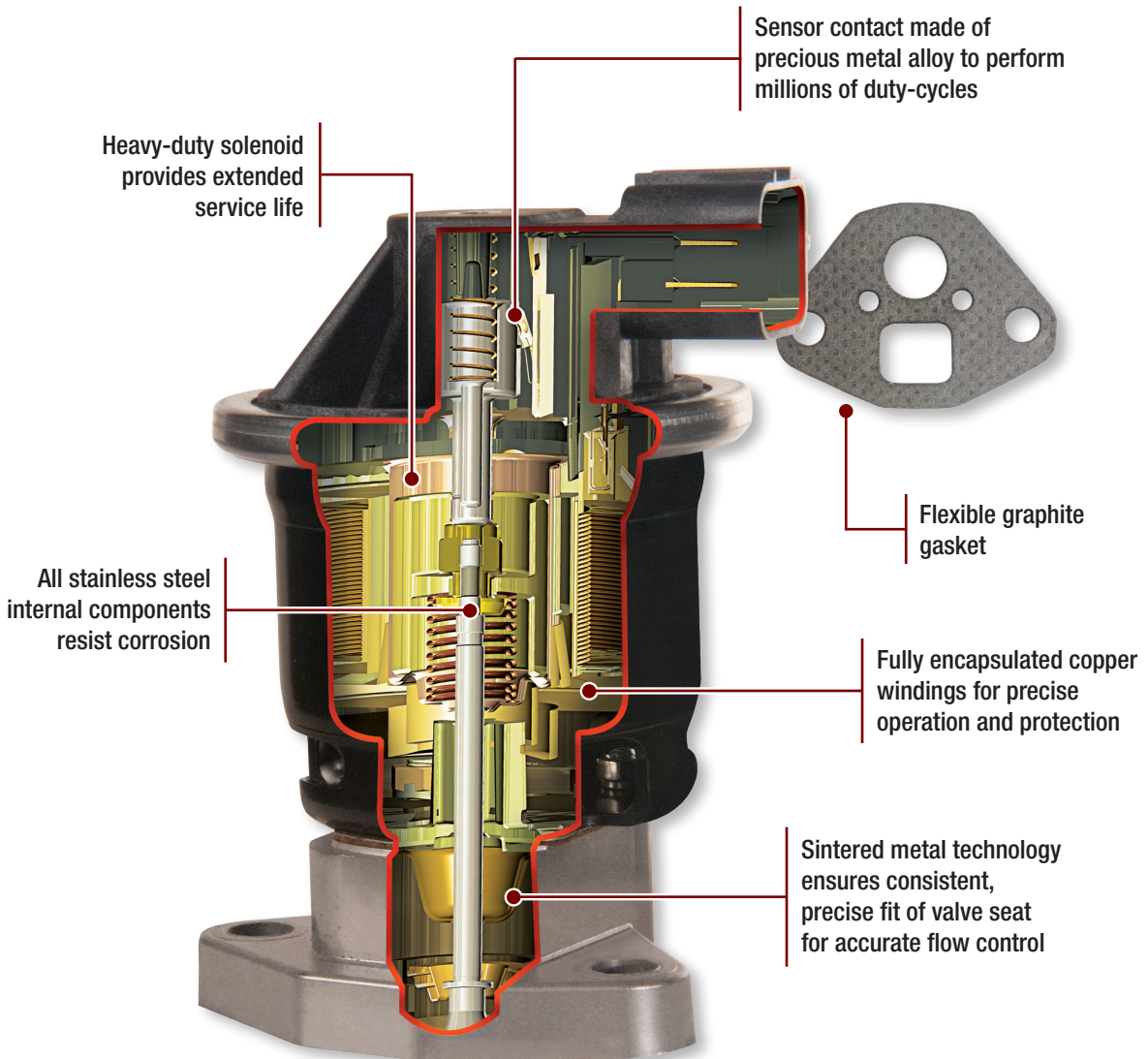
At Intermotor® we design the details that deliver superior quality and performance. Manufactured in our TS16949-certified facility in Reynosa, Mexico, our Crankshaft Position Sensors feature matching connectors and tin-plated brass terminals to ensure an accurate, watertight connection to the wiring harness. They undergo 100% end-of-line testing to ensure proper timing, pulse width and signal amplitude.



EGR Valve

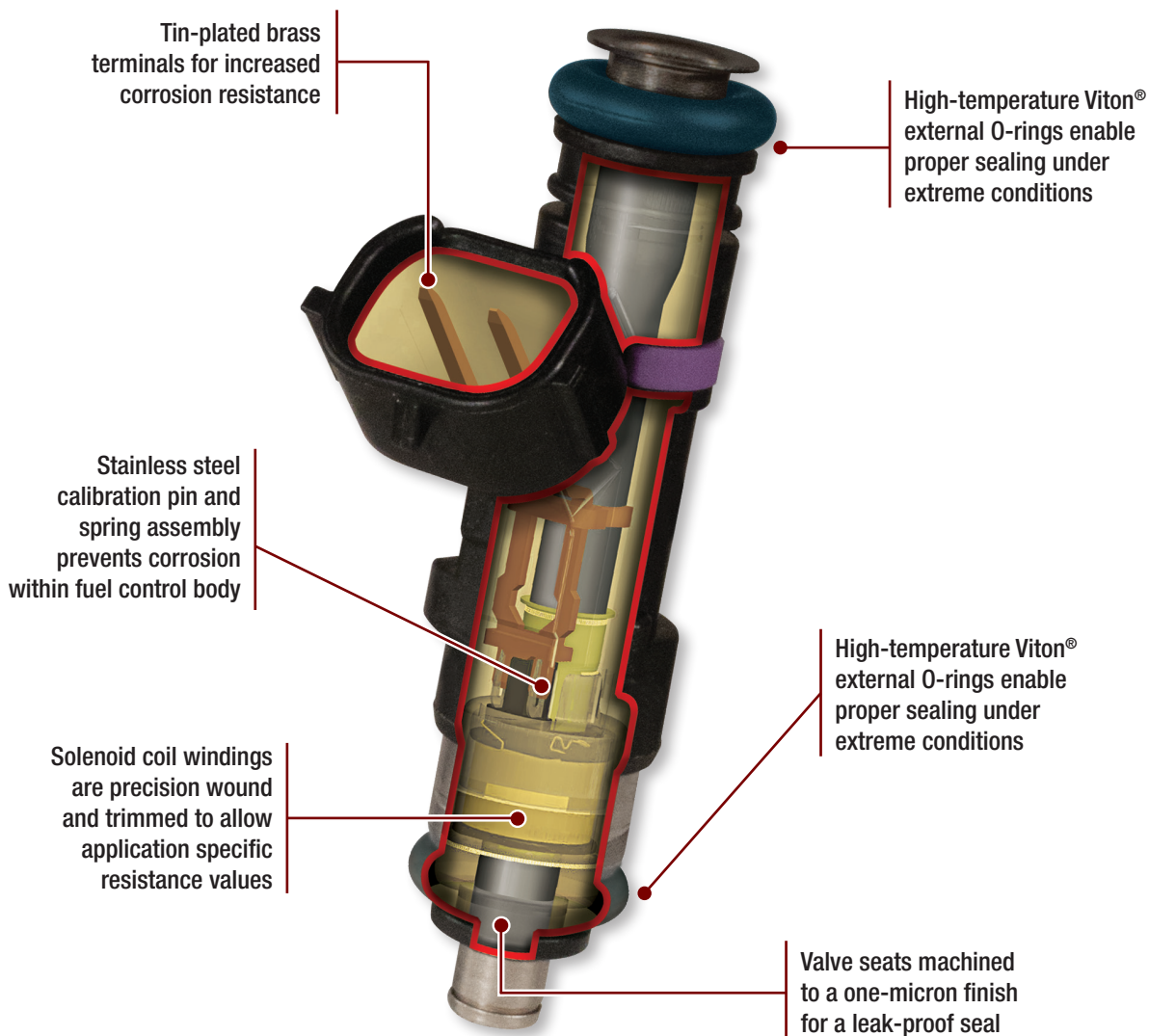
Designed to Go the Distance

At Intermotor®, every part we design features thoughtful details that elevate it above the competition. Our EGR valve sensor contacts are made with a precious metal alloy that withstands millions of duty-cycles. They're manufactured and 100% factory-tested for proper flow, solenoid resistance, response time and leakage in our TS16949-certified facility in Reynosa, Mexico.



Designed for Special Delivery

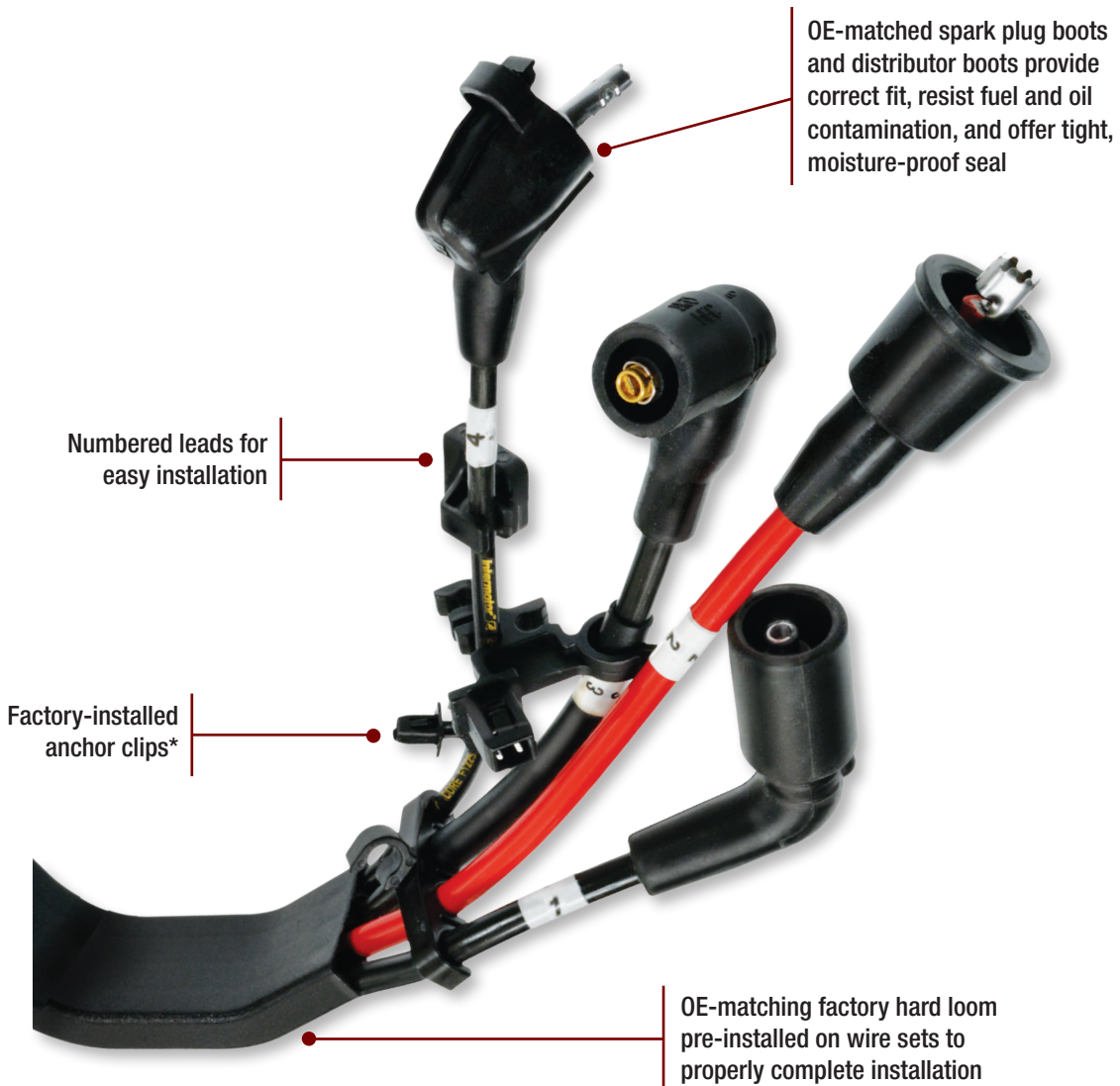
Our fuel injectors are flow-matched to each specific application, with advanced laser-drilled metering holes that deliver precise flow and spray patterns for proper injector performance under all conditions. They're manufactured in our TS16949-certified facility in Greenville, SC, and 100% tested for coil resistance, injector leakage, static and dynamic flow.



Ignition Wire Set

Designed to Make It Easy

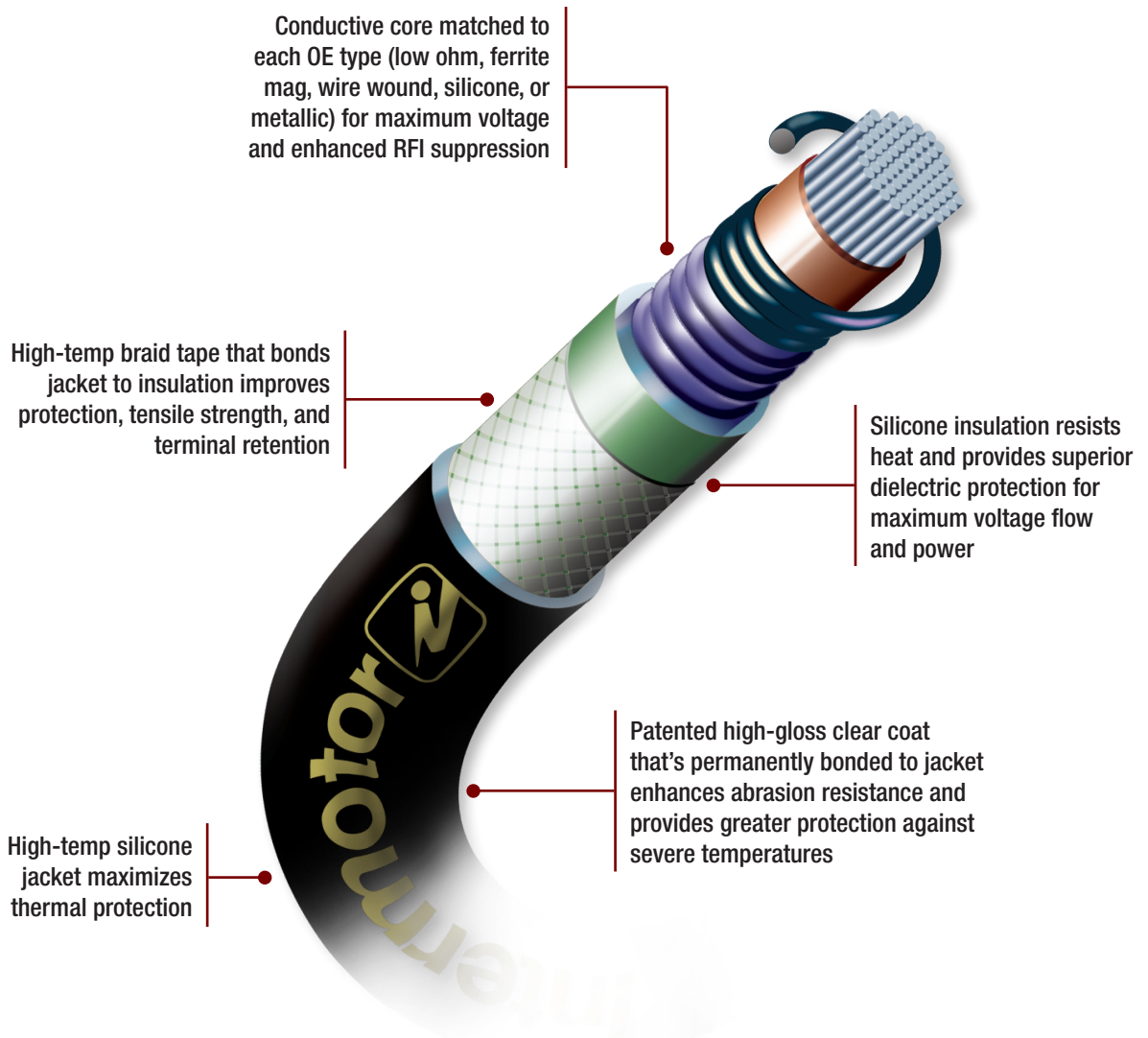
At Intermotor® we achieve excellence by pushing for the “plus” – the extra details that set our products above the rest. Intermotor® Import Ignition Wire Sets feature original equipment fit, form, and function plus all the extras you’d expect from an industry leader, including factory-installed clips, trays, loom and numbered leads. In addition to making installation easier, these extras give our parts an OE look that technicians and motorists can appreciate.



* Factory-installed upgrades are specific to vehicle make and model. Composite image for illustration purposes only.

Beauty's More Than Skin Deep

It's what's on the outside that gives Intermotor[®] Wire its beauty, but it's what's on the inside that gives Intermotor[®] Wire its import firepower. Intermotor[®] Wire conductors have precision-matched resistance values to ensure maximum voltage delivery and spark duration. Every set is designed, built and tested to meet or exceed the tough international TS16949 quality standards.



The highest-quality engine management parts come out of Intermotor's 90,000 sq. ft. facility in Bialystok, Poland. The facility employs lean manufacturing methods centered on the 5S philosophy and Kanban scheduling and inventory control. The TS16949-certified plant serves as a basic design and engineering center for ignition coils (including plug top coils and pencil coils), a variety of switches and sensors, and a range of glow plugs. The vertically integrated manufacturing process employs an array of steps to ensure quality, including:



- Multi-spindle winding
- Injection molding
- Potting
- Curing
- Welding
- ...and much more

Extensive Testing

To ensure quality and reliability, all Intermotor[®] products manufactured at our Poland facility go through a full spectrum of measurement, life testing, and environmental analysis that includes thermo shock, thermo cycling, salt spray, vibration, and storage tests.



Sensors

BWD® and Intermotor® manufacture sensors for an array of engine management applications, including accelerator pedals, ABS, vehicle speed, camshafts, crankshafts, coolant temperature, and yaw rate.



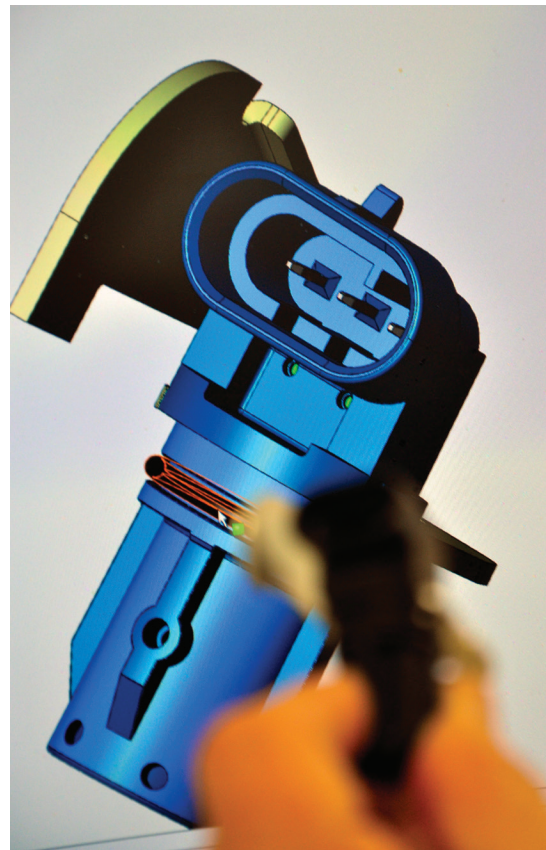
About Sensors

The computers on modern vehicles receive and process information from many different sensors. When these sensors fail or function incorrectly it can lead to drivability and safety issues. BWD and Intermotor's expansive line of sensors is your go-to source for the form, fit and function demanded by today's technicians. All of our state-of-the-art sensors are designed to deliver exceptional performance and extended service life.

Engineering and Manufacturing Quality Sensors

BWD® and Intermotor® manufacture and offer more than 60 different types of sensors, including:

- A/C Ambient Air Temperature Sensor
- ABS Speed Sensor
- Accelerator Pedal Sensor
- Air Charge Temperature Sensor
- Brake Pad Wear Sensor
- Camshaft / Crankshaft Position Sensor
- Coolant Level Sensor
- Coolant Temperature Sensor
- EGR Valve Position Sensor
- Exhaust Back Pressure Sensor
- Fuel Pressure Sensor
- Fuel Vapor / Vent Pressure Sensor
- Knock (Detonation) Sensor
- MAP Sensor
- Power Steering Pressure Sensor
- Throttle Position Sensor
- Transmission Input / Output Sensor
- Turbocharger Boost Sensor
- Vehicle Speed Sensor
- YAW Rate Sensor

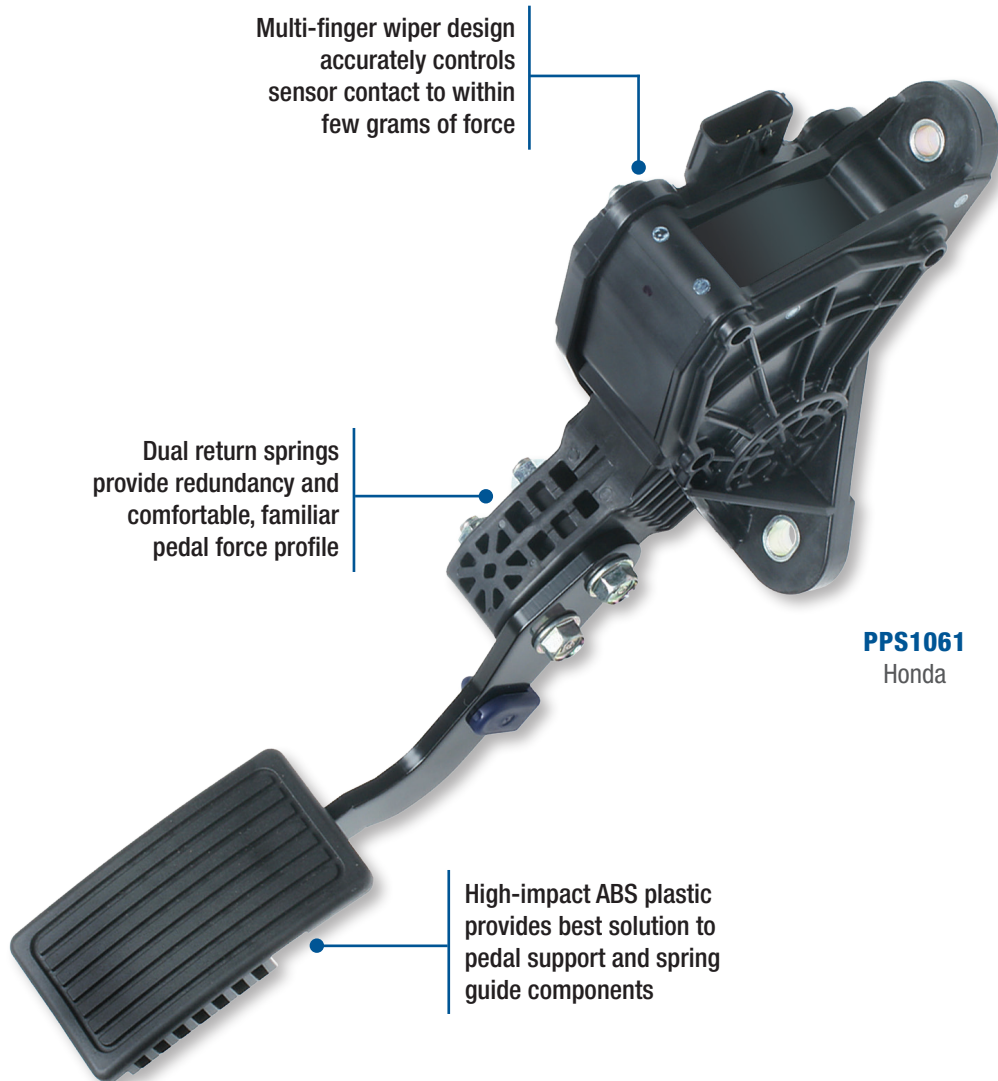


Full-Line Coverage

The list above is only a sample of our offering. Together, BWD® and Intermotor® offer a full line of sensors for domestic and import applications. Each one is manufactured and tested to ensure the performance and durability that's demanded by today's professional technicians.

Accelerator Pedal Sensors

The accelerator pedal sensor assembly combines the familiar accelerator pedal with a dual output sensor for a drive by wire application. The throttle cable is replaced by a pedal position sensor to continuously measure driver input. BWD® and Intermotor® Accelerator Pedal Sensors undergo testing of output voltage versus pedal position, where the slope and linearity of the two separate outputs are accurately checked to ensure correct operation on the vehicle.



Multi-finger wiper design accurately controls sensor contact to within few grams of force

Dual return springs provide redundancy and comfortable, familiar pedal force profile

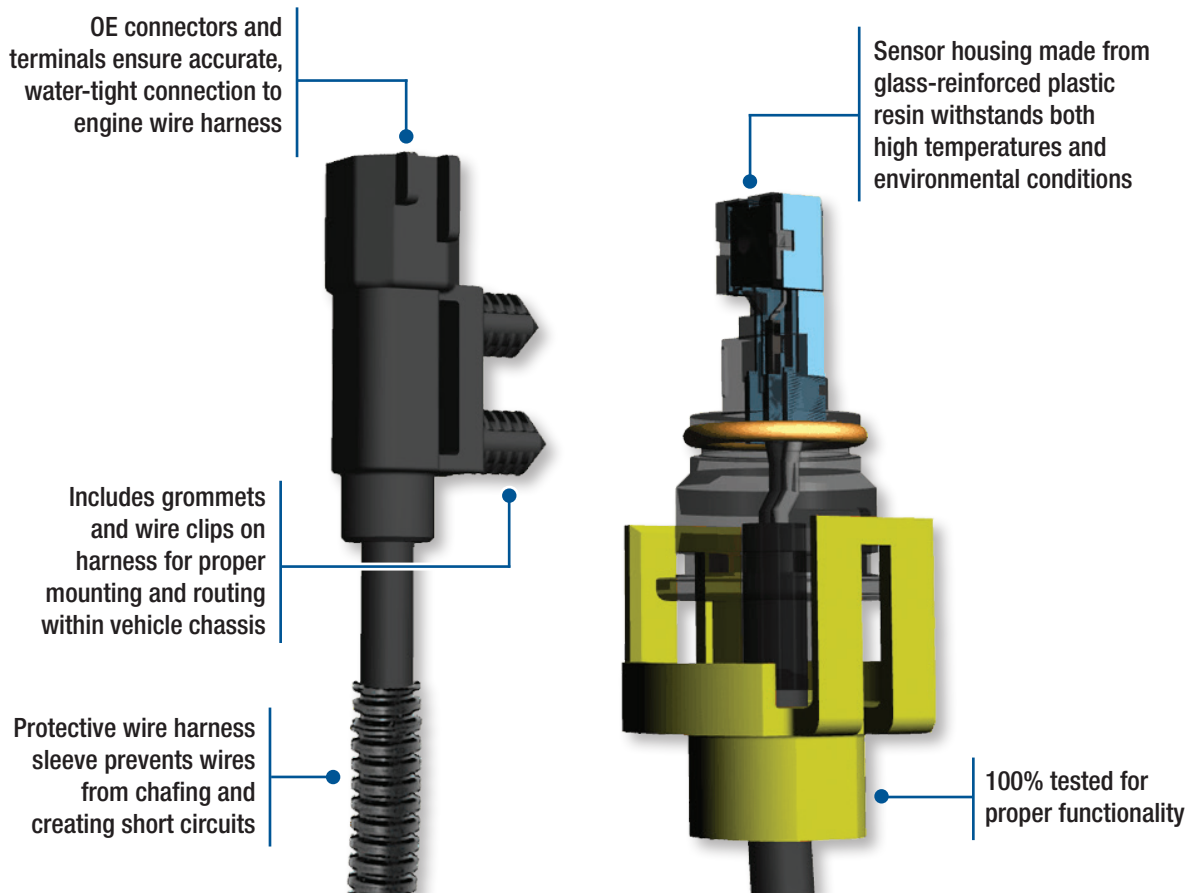
High-impact ABS plastic provides best solution to pedal support and spring guide components

PPS1061
Honda

Tech Tip: A quick way to check the sensor is to look for smooth voltage changes on the signal wire as the accelerator pedal sensor is being depressed and released.

Anti-lock Brake (ABS) Sensors

The anti-lock braking system uses an ABS or wheel sensor to monitor the wheel speed and send this information to the ABS computer. The ABS computer uses this information to prevent the brakes from locking during a stop. As industry leaders, BWD® and Intermotor® are proud to offer a line of ABS sensors with complete coverage for domestic and import applications.



Tech Tip: On non-Hall effect sensors, you can use an ohmmeter to test ABS sensor wire windings and sensor harnesses for opens, shorts, and proper factory-specified resistance.

ABS Sensor Testing

In order to ensure performance and reliability, we subject our ABS sensors to extensive laboratory and real-life testing. We measure and compare shaft speed vs. delta voltage, output voltage, magnetic field strength, air gap, output wave form, and pulse width. We also performed a complete physical product comparison to the OE. Here are the results:



ABS1443

BWD: ABS Sensor no. ABS1443 (GM 02-95) matches OE for output voltage, resistance, trigger wheel gap and all critical fit, form, and function measurables.

Competition: 29%-51% lower voltage output when compared to OE, leading to potential ABS system failure. Incorrect mounting bracket does not match OE.



ABS309

BWD: ABS Sensor no. ABS309 (Ford 09-95) matches OE for output voltage, resistance, trigger wheel gap and all critical fit, form, and function measurables.

Competition: 45%-74% lower voltage output when compared to OE, leading to potential ABS system failure. Inconsistent winding resistance, electrical inductance and magnetic field orientation resulting in poor sensor performance. Inconsistent gap between sensor tip and trigger wheel leading to potential sensor tip damage.

Compared to the Competition, BWD® ABS Sensors have:

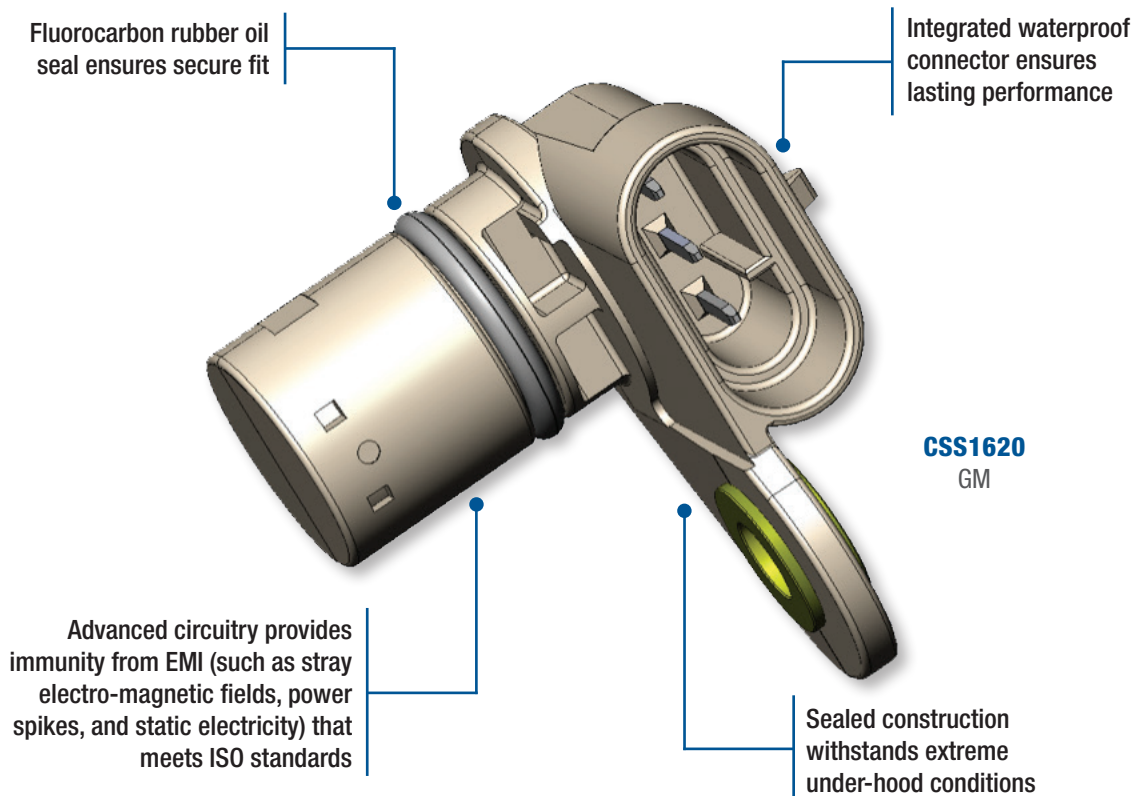
- More consistent signal output performance
- Superior magnetic circuit materials that result in higher voltage output to prevent ABS system failure
- Superior quality inspection and product testing
- More consistency in matching OE for form, fit, and critical function

Camshaft/Crankshaft Position Sensors

BWD® and Intermotor® Camshaft and Crankshaft Position Sensors are manufactured at our TS16949-certified facility in Reynosa, Mexico. To make sure they perform and last, we put each unit through end-of-line timing, pulse width, and signal amplitude testing. That means you'll get a sensor that protects against over-voltage, under-voltage, reverse-voltage, and short circuits, and that maintains accuracy during heavy-duty shock, vibration, and maximum temperature conditions. Our comprehensive line of Camshaft and Crankshaft Position Sensors has applications for all makes, including Chrysler, Ford, GM, Honda, Mercedes-Benz, Nissan, Toyota, and Volkswagen.

Camshaft Position Sensor

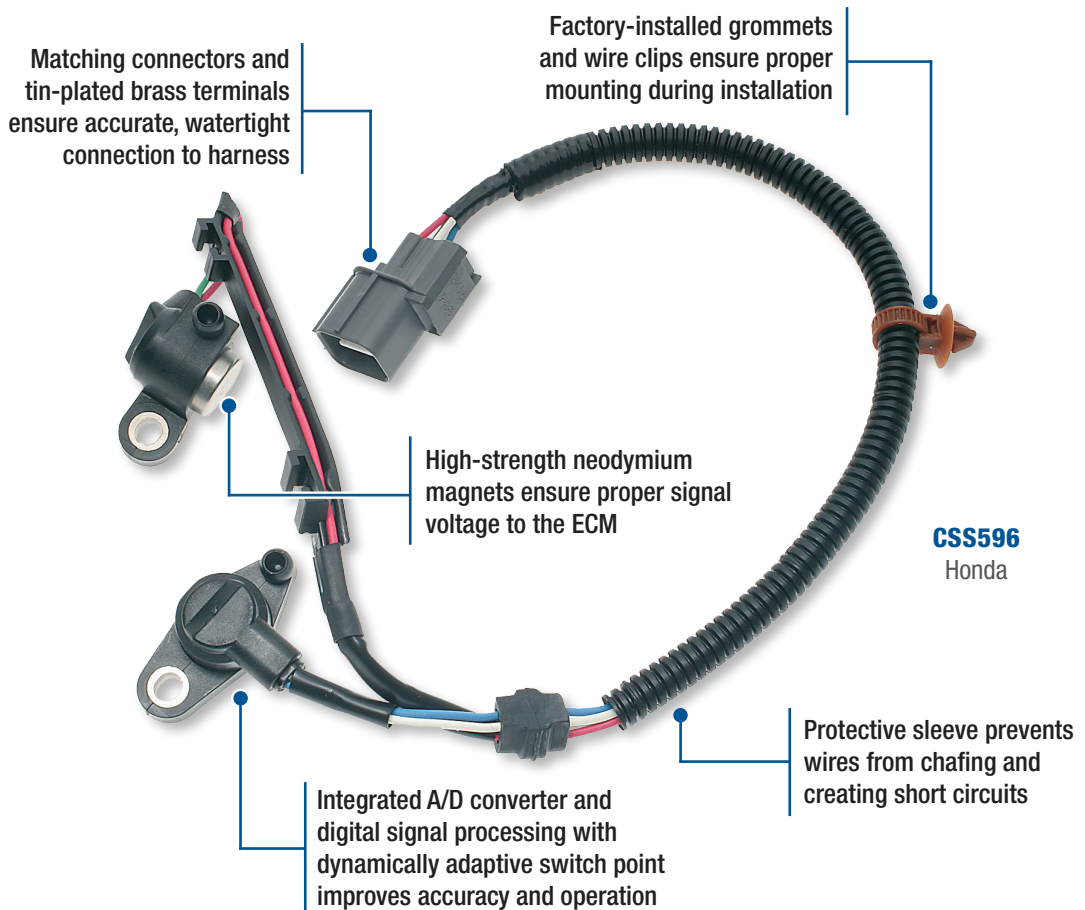
Camshaft position sensors are typically located in the cylinder head of the engine, where they determine which cylinder is firing to establish injector synchronization and coil firing sequence in DIS systems.



Tech Tip: To determine if a sensor is malfunctioning, use a scan tool to check the RPM while cranking the engine. If the engine runs, a scope is the best diagnostic tool.

Crankshaft Position Sensor

Located in either the timing cover or on the side of the block with a cylindrical portion that inserts into the block, crankshaft position sensors set ignition timing, supply the RPM signal, and determine engine speed.

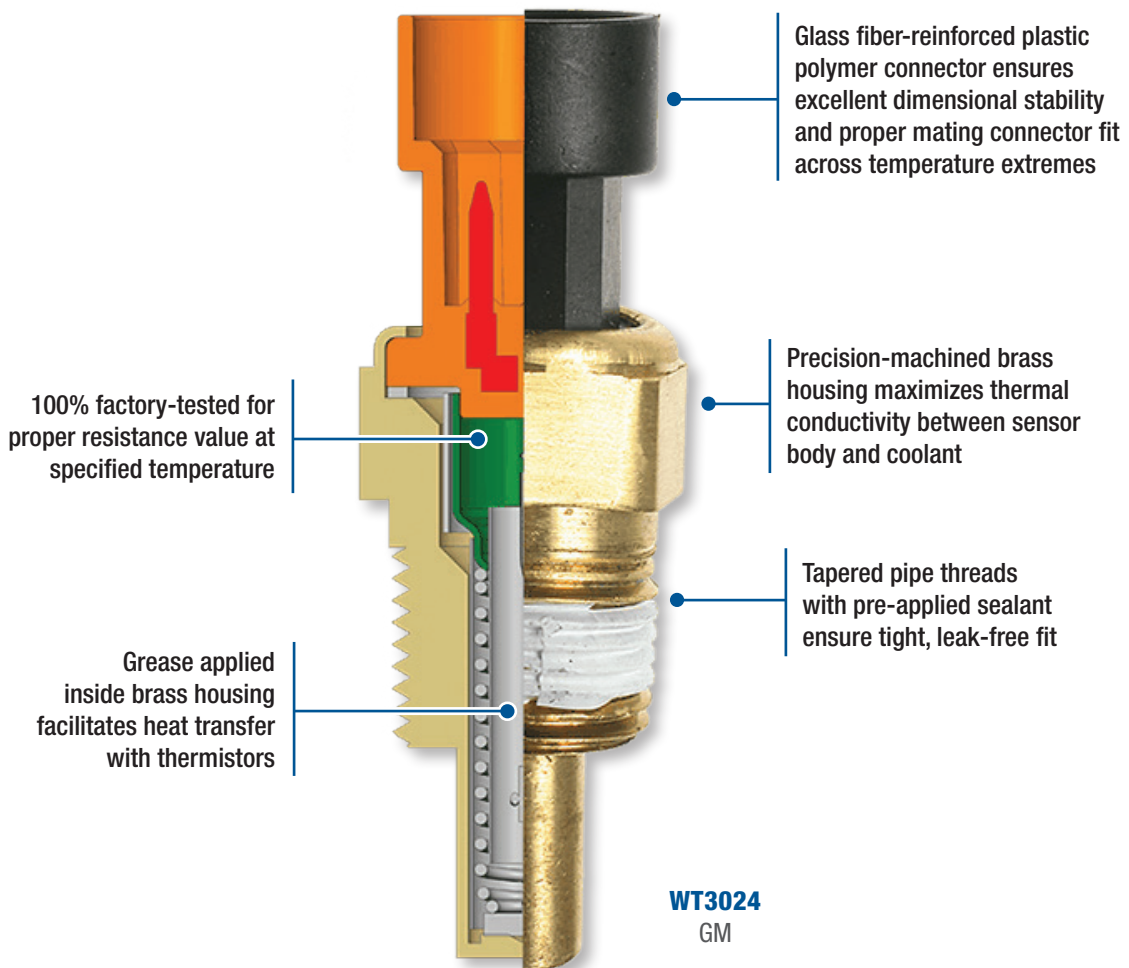


Do the Job Right: Replace Cam/Crank Sensors Together

With ever-increasing fuel economy regulations, modern engines are using VVT systems with multiple camshafts. A typical DOHC engine will have 2-4 camshaft position sensors as well as a crankshaft position sensor. If one sensor fails, it likely means that the other sensors are nearing the end of their service life, too. To ensure proper performance, we recommend replacing the camshaft and crankshaft position sensors together.

Coolant Temperature Sensors

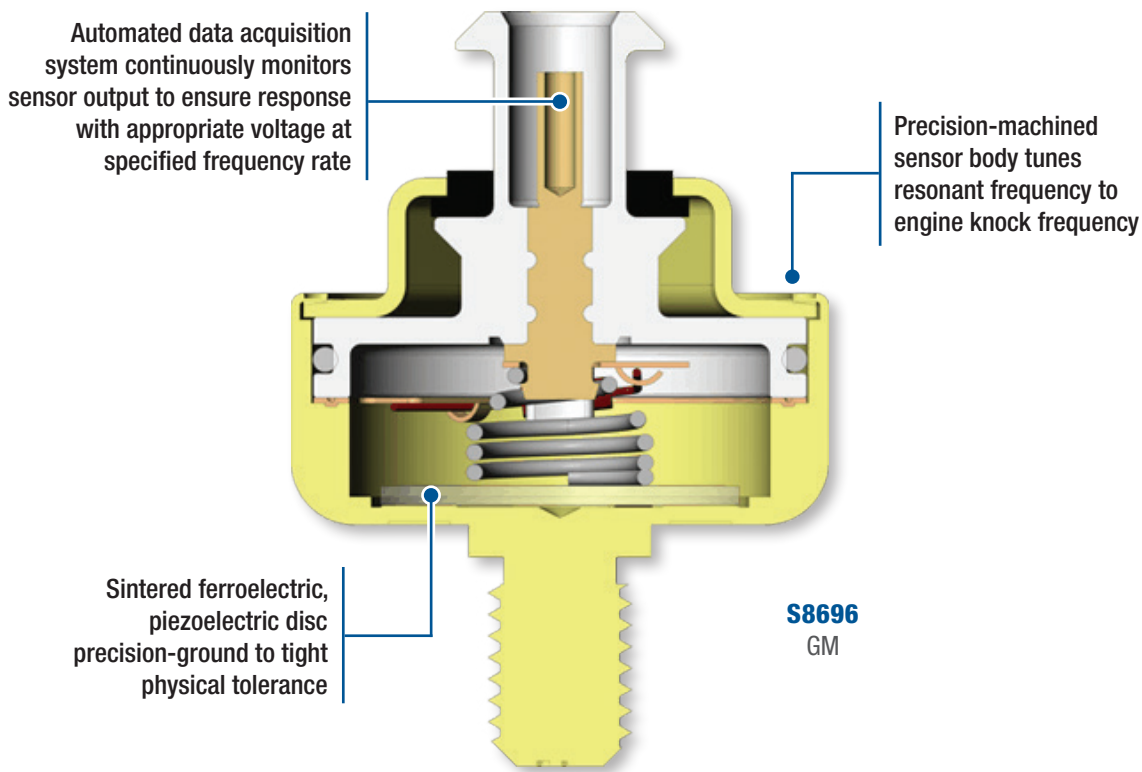
The coolant temperature sensor monitors coolant temperature and then displays the measurement to the vehicle's occupants. The engine can be in danger of damage if it operates at too high of a temperature. The coolant temperature sensor is critical to many PCM functions such as fuel injection, ignition timing, variable valve timing, and transmission shifting. Every BWD® and Intermotor® Coolant Temperature Sensor is environmental and 100% functional tested to ensure optimum performance and durability out of the box.



Tech Tip: The sensor's temperature reading should closely match the air charge/manifold temperature reading on a scan tool if the engine has not been run for over an hour. The sensor circuit can be checked for proper voltage using a voltmeter.

Typically located in the lower engine block, cylinder head, or intake manifold, knock sensors send a voltage signal created by detonation vibrations to a vehicle's computer to retard timing when spark knock occurs. A damaged or failed sensor may illuminate the MIL and/or cause pinging and drivability problems.

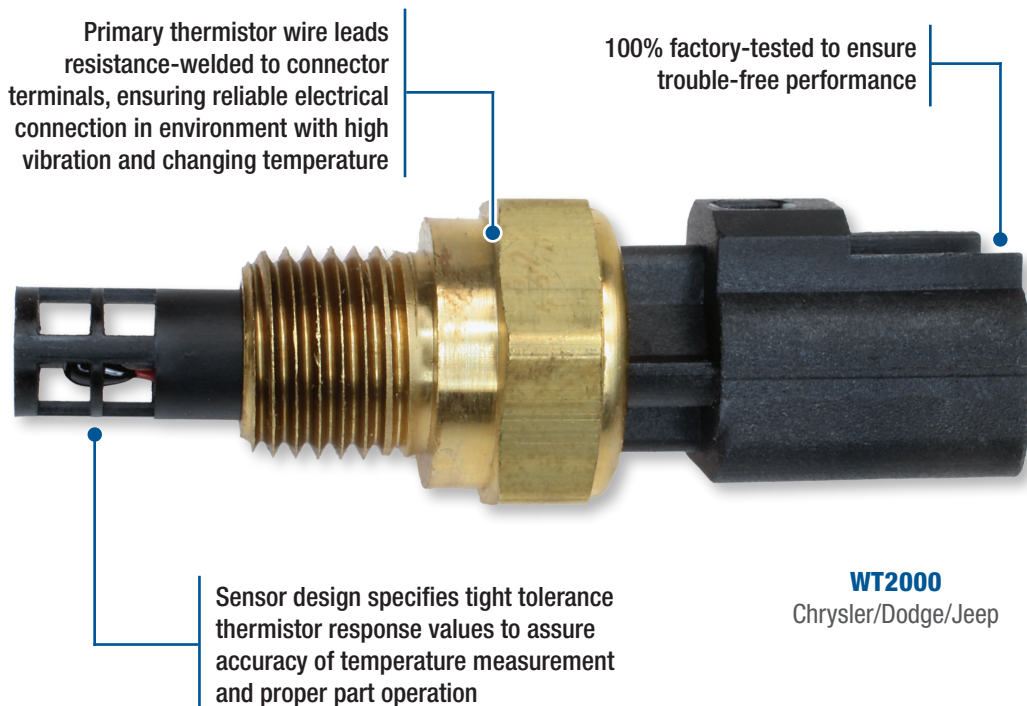
With applications for an array of domestic and import vehicles, BWD's line of Knock Sensors is designed to respond to knock frequencies of up to 1000 Hz and to shifts in engine knock frequency, making them more effective over a broad range of vehicle conditions. All units undergo an accelerometer vibration test to ensure trouble-free operation. Key features include:



Tech Tip: To check for proper operation, use a scan tool to monitor the knock sensor data parameter. Note that some activity should occur during acceleration and that DTCs range between P0324 and P0333.

Manifold Temperature/Air Charge Sensor

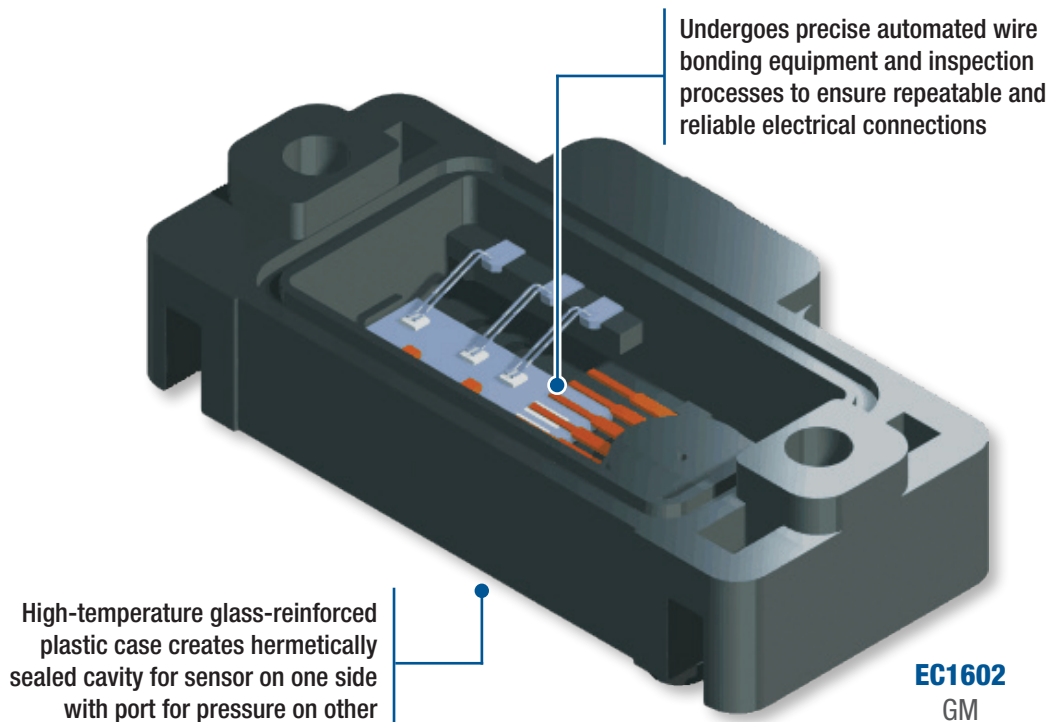
The manifold temperature/air charge sensor is used by the computer to measure air density for fuel mixture control. The computer uses this information to trim the air/fuel ratio according to the air density. Typically these sensors fail due to exposure to the under-hood heat from engine operation. Collecting debris on the sensor element may also cause it to operate improperly. Every BWD® and Intermotor® Manifold Temperature/ Air Charge Sensor is 100% factory tested to ensure trouble-free performance.



Tech Tip: A DTC will be set if an abnormal reading occurs (P0112 low input or P0113 for a high input). The air charge/manifold sensor temperature reading should closely match the engine coolant temperature reading on a scan tool if the engine has not been run for over an hour. The sensor circuit can be checked for proper voltage using a voltmeter.

The Manifold Absolute Pressure (MAP) sensor converts engine vacuum/manifold pressure to an electrical signal so the computer knows how much load the engine is under. This data is the basis for fuel delivery and timing control.

BWD® and Intermotor® MAP sensors are 100% tested during manufacturing for electronic component assembly and connectivity, and 100% tested prior to shipping for sensor output voltage vs. pressure and response function.



EC1742
Ford



EC7024
Honda

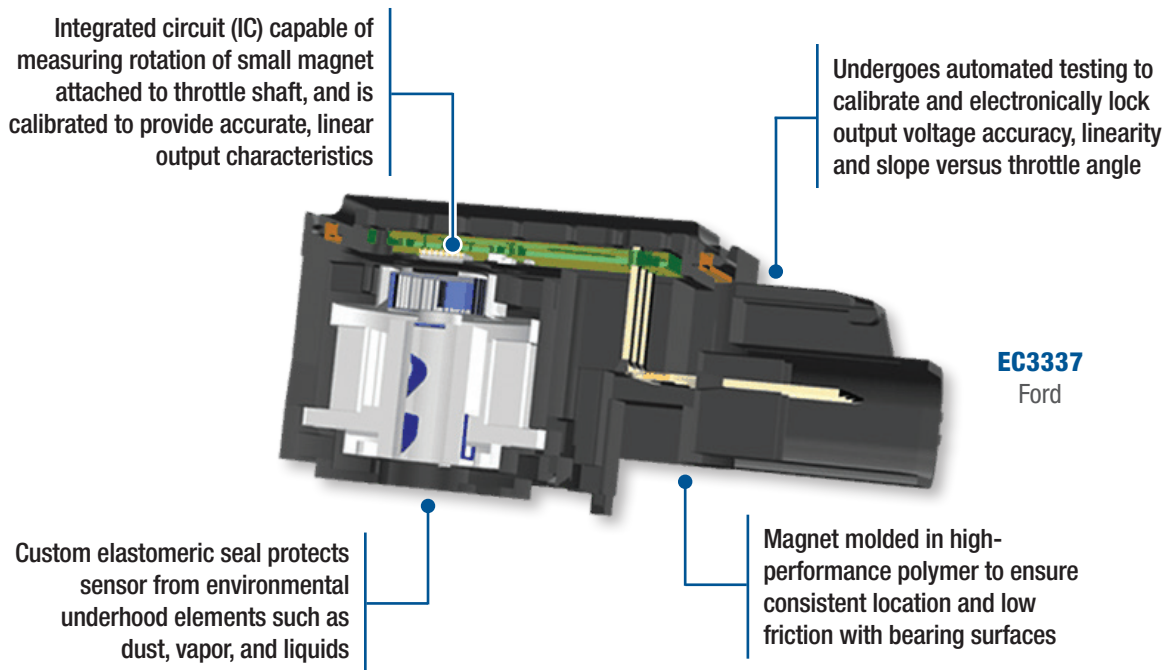


EC7026
Toyota

Throttle Position Sensor

The throttle position sensor moves with the throttle and sends a voltage signal to the computer indicating throttle angle and speed of movement data. The computer uses this data to measure engine load, adjust timing, fuel delivery, EGR, and converter clutch operation, and clear flood mode.

BWD® and Intermotor® Throttle Position Sensors are designed, manufactured, and tested to maintain specific installed outputs to match OE rather than adjustable consolidated designs.

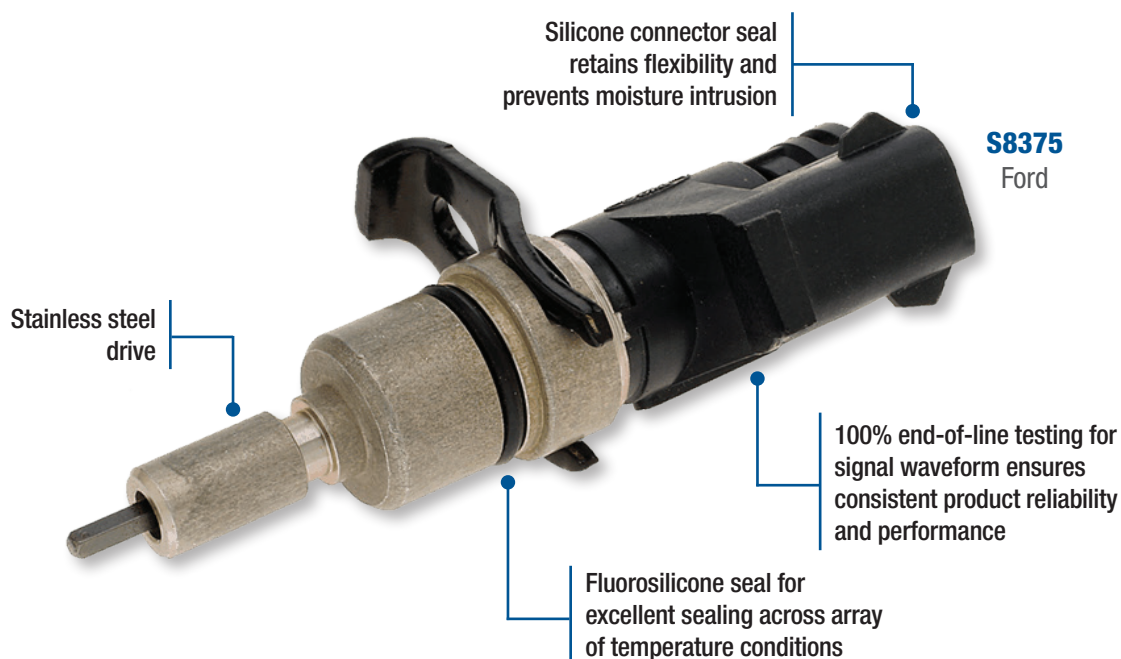


The throttle position sensor is mounted on the throttle body. Typically, these sensors fail due to excess vibration, water intrusion, and high under-hood heat. To determine if the TPS is malfunctioning, look for smooth voltage changes on the signal wire as the throttle plate is being opened and closed. The diagnostic codes range from P0120 through P0125.

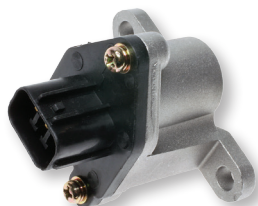


The vehicle speed sensor (VSS) measures transmission/transaxle output or wheel speed. The ECM uses this information to modify engine functions such as ignition timing, air/fuel ratio, transmission shift points, and to initiate diagnostic routines.

As a basic manufacturer, BWD® and Intermotor® have complete control of the manufacturing process from componentry to finished product for a trouble-free product. BWD® and Intermotor® Vehicle Speed Sensors undergo environmental, endurance, and 100% end-of-line testing for signal amplitude and polarity to ensure consistent product reliability and performance.



Tech Tip: To determine if these sensors are malfunctioning, check for diagnostic codes ranging between P0500 and P0503. Additionally, the VSS can be checked with a scan tool or undergo a resistance check.



S8384
Honda

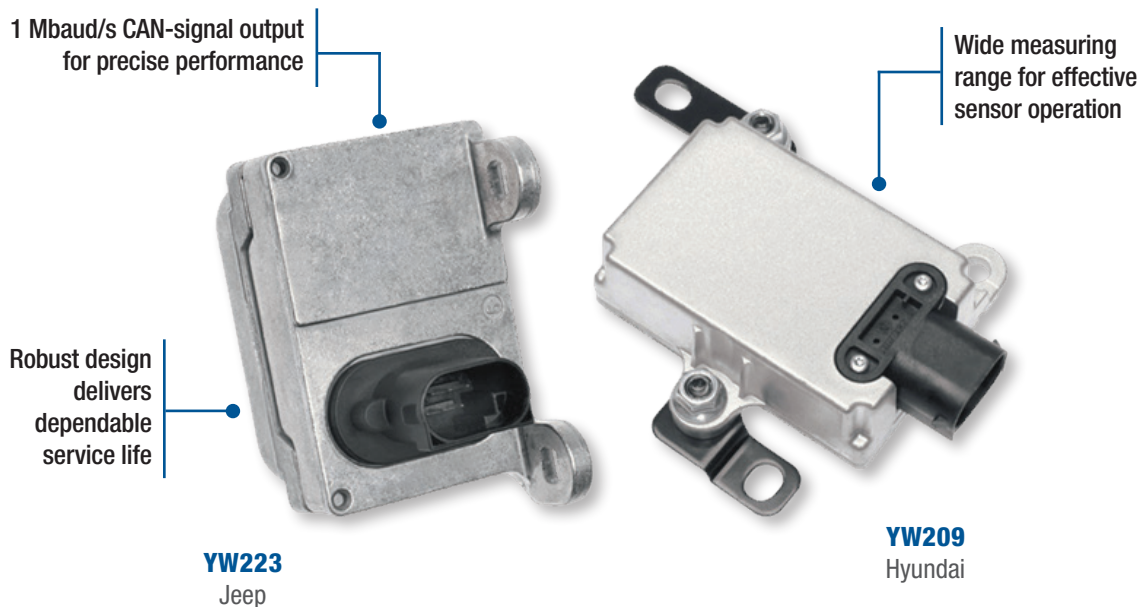


SN7207
Nissan



S8322
GM

Yaw rate sensors (a.k.a. rotational speed sensors) measure a vehicle's angular velocity about its vertical axis in degrees or radians per second in order to determine the orientation of the vehicle as it hard-corners or threatens to roll-over. BWD® and Intermotor® supply the high-quality parts you need for this high-tech category.



A Closer Look at Yaw and Yaw Rate Sensors

What is yaw?

The movement of an object turning on its vertical axis.

So what does a yaw rate sensor do?

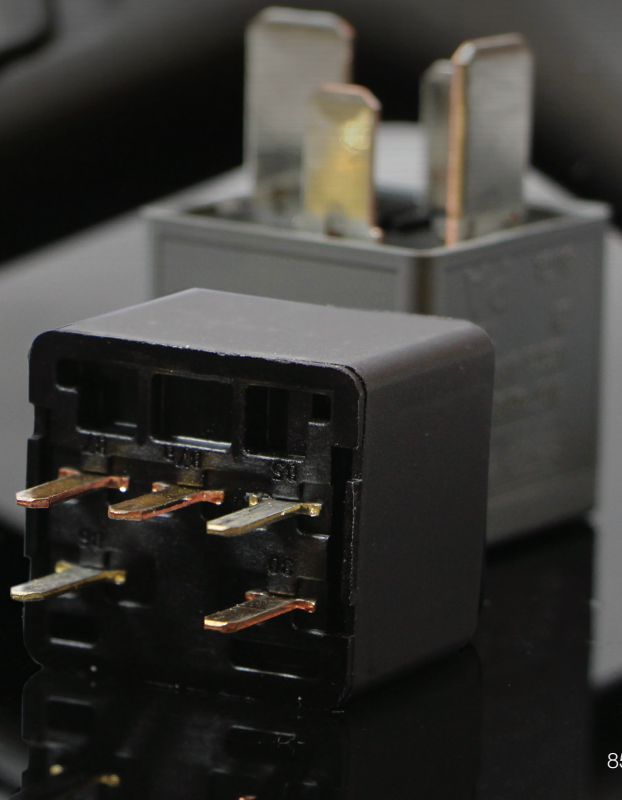
The yaw rate sensor uses gyroscopes to monitor the slip angle (the angle between the vehicle's heading and actual movement direction) to determine how far off-axis a car is "tilting" in a turn.

What does that mean for the motorist?

The vehicle's computer uses the info to evaluate the wheel speed, steering angle, and accelerator position. If the system senses too much yaw, the appropriate braking force is automatically applied to prevent rollovers.

Switches & Relays

BWD® and Intermotor® offer more than 10,000 engine, multifunction, and driver-operated switches and relays, all meticulously designed, manufactured, and tested for reliability and performance.



Switches & Relays

As the automotive industry introduces more electronic systems, switches and relays will play a greater role in daily operation and repairs. With over 10,000 engine, multifunction, and driver-operated switches and relays for import and domestic vehicles, BWD® and Intermotor® are ready with a vast selection of technologically advanced components to address the daily repair needs of technicians.

Switches

Our expansive line of switches are meticulously designed, manufactured and tested for reliability and performance. Here are a few of the categories that we cover:

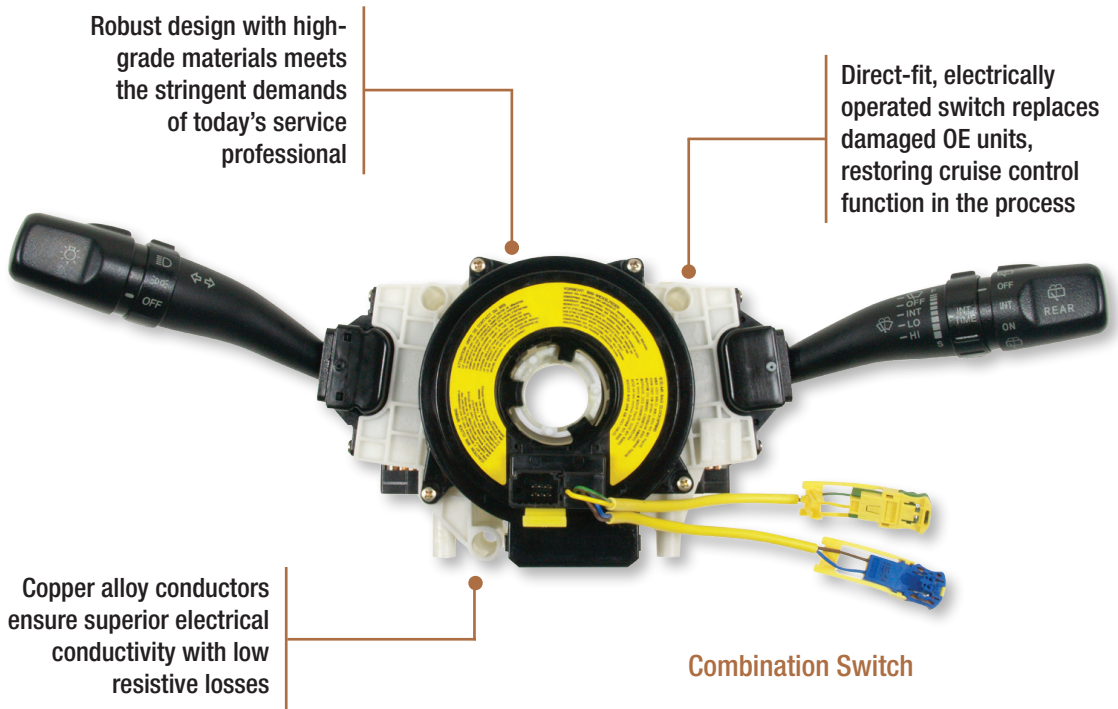
- A/C and Heater Selector Switch
- Axle Shift Switch
- Back-Up Light Switch
- Clutch Starter Safety Switch
- Combination Switch
- Coolant Fan Switch
- Cruise Control Switch
- Door Jamb Switch
- Door Lock Position Switch
- Driver Information Display Switch
- Fog Lamp Switch
- Four Wheel Drive Switch
- Fuel Injection Thermo Time Switch
- Fuel Tank Selector Switch
- Hazard Warning Switch
- Headlight Switch
- Hood Ajar Switch
- Ignition Starter Switch
- Ignition Switch with Lock Cylinder
- Instrument Panel Dimmer Switch
- Neutral Safety Switch
- Oil Pressure Light Switch
- Parking Brake Switch
- Ported Vacuum Switch
- Power Door Lock Switch
- Power Seat Switch
- Power Steering Pressure Switch
- Power Sunroof Switch
- Power Window Switch
- Rear Window Defogger Switch
- Remote Mirror Switch
- Rocker Switch
- Stoplight Switch
- Toggle Switch
- Traction Control Switch
- Trunk Release Switch
- Turn Signal Switch
- Windshield Wiper Switch

Relays

With more than 225 unique relay categories, BWD® and Intermotor® are your go-to source for a full line of accessory and electronic relay solutions that match the OE for fit, form, and function. Here are a few popular categories:

- A/C Compressor Clutch Relay
- A/C Relay
- ABS Relay
- Accessory Relay
- Automatic Headlight On/Off Relay
- Check Lamp Relay
- Coolant Fan Relay
- Daytime Running Lamp Relay
- Engine Control Relay
- Headlight Dimmer Switch Relay
- Ignition Control Module Relay
- Ignition Relay
- Keyless Entry System Relay
- Multi-Function Relay
- Power Door Lock Relay
- Rear Window Defogger Relay
- Rear Window Wiper Relay
- Secondary Air Injection Pump Relay
- Sunroof Relay
- Trailer Towing Package Relay
- Wiper Relay

BWD® and Intermotor® offer an array of driver/passenger operated switches. To get an idea of the design, manufacturing, and testing that goes into these switches, check out the features on this combination switch:



Cruise Control Switch



Power Window Switch



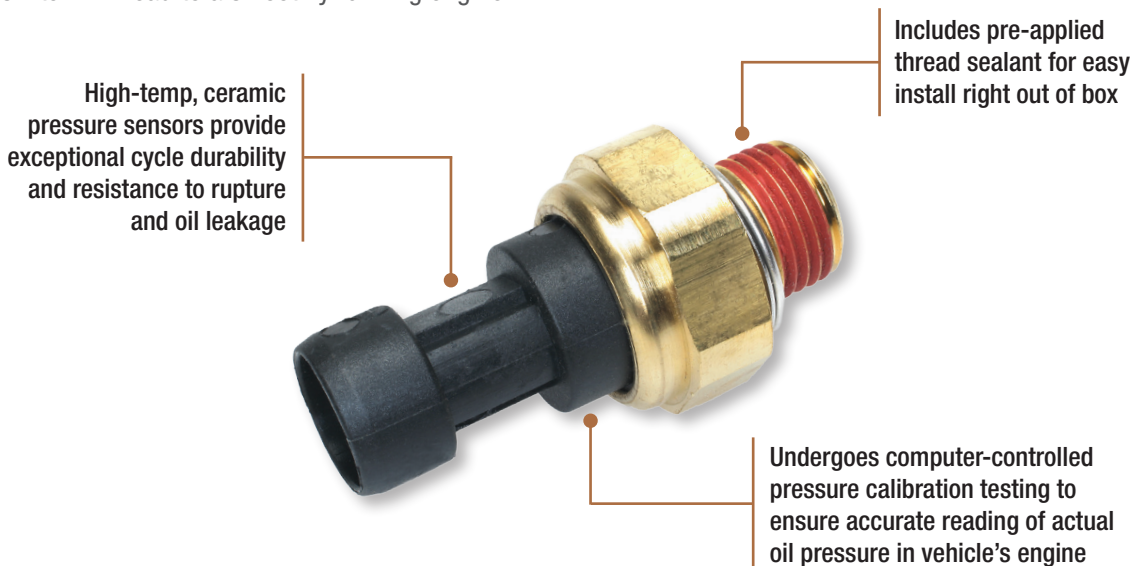
Power Seat Switch

Engine Switches

In addition to driver/passenger operated switches, BWD® and Intermotor® offer a vast selection of engine switches. They're all designed and manufactured using high-quality materials and then tested to ensure performance and long service life.

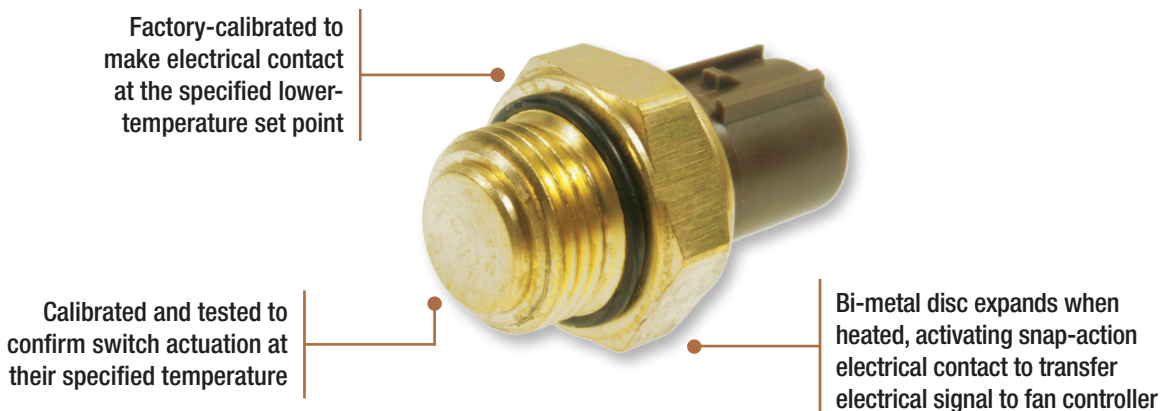
Oil Pressure Switch

The oil pressure switch indicates loss in the engine's oil pressure. Accurate readings from the switch will lead to a smoothly running engine.

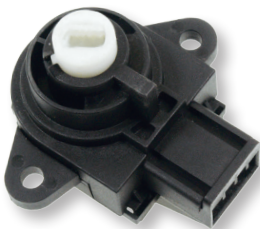
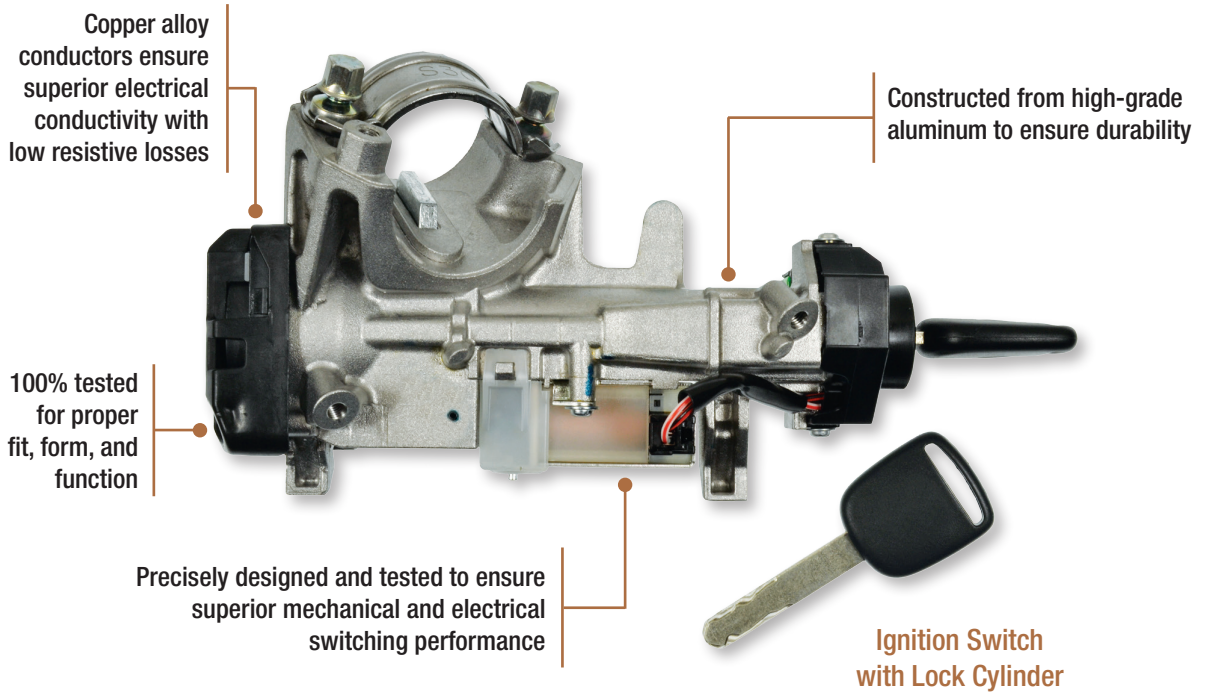


Coolant Fan Switch

When the coolant reaches a specified temperature, this switch turns on the vehicle's coolant fan, which draws air through the radiator to regulate engine temperature.



BWD® and Intermotor® offer a complete line of Ignition Switches and Lock Assemblies that's unsurpassed in quality. All BWD® and Intermotor® Ignition Switches, Lock Cylinders, and Assemblies are perfectly matched to the original for precision installation. Furthermore, they are quality-constructed using solid brass tumblers, chrome-plated brass keys, die-cast zinc lock cores, and multiple, randomly assigned key codes to ensure superior operation.



Ignition Starter Switch

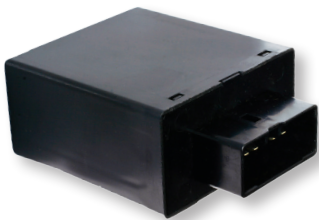
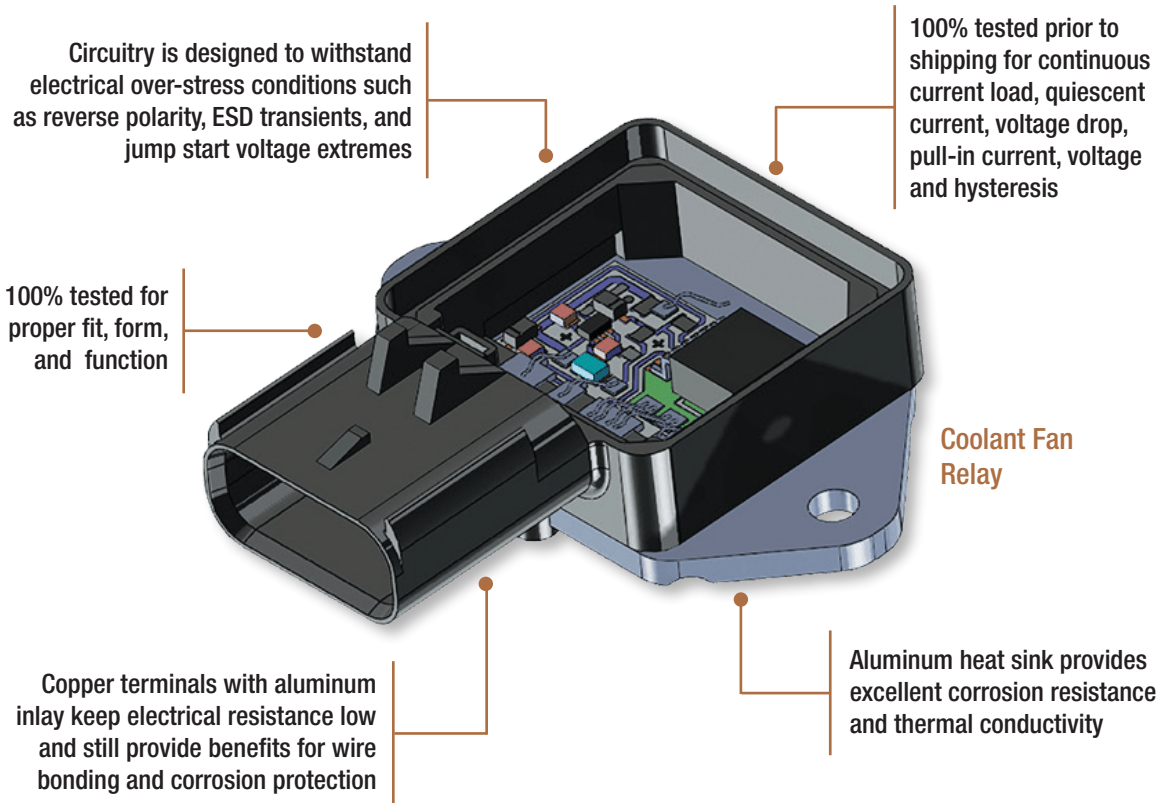


Push Button Starter Switch

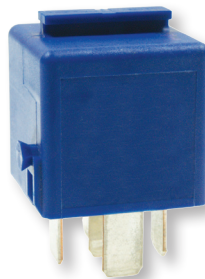


Ignition Lock Cylinder

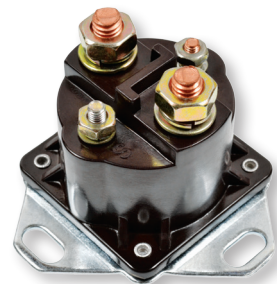
BWD® and Intermotor® Relays are the product of high-quality design, testing, and manufacturing. Take this coolant fan relay for example:



Flasher Relay



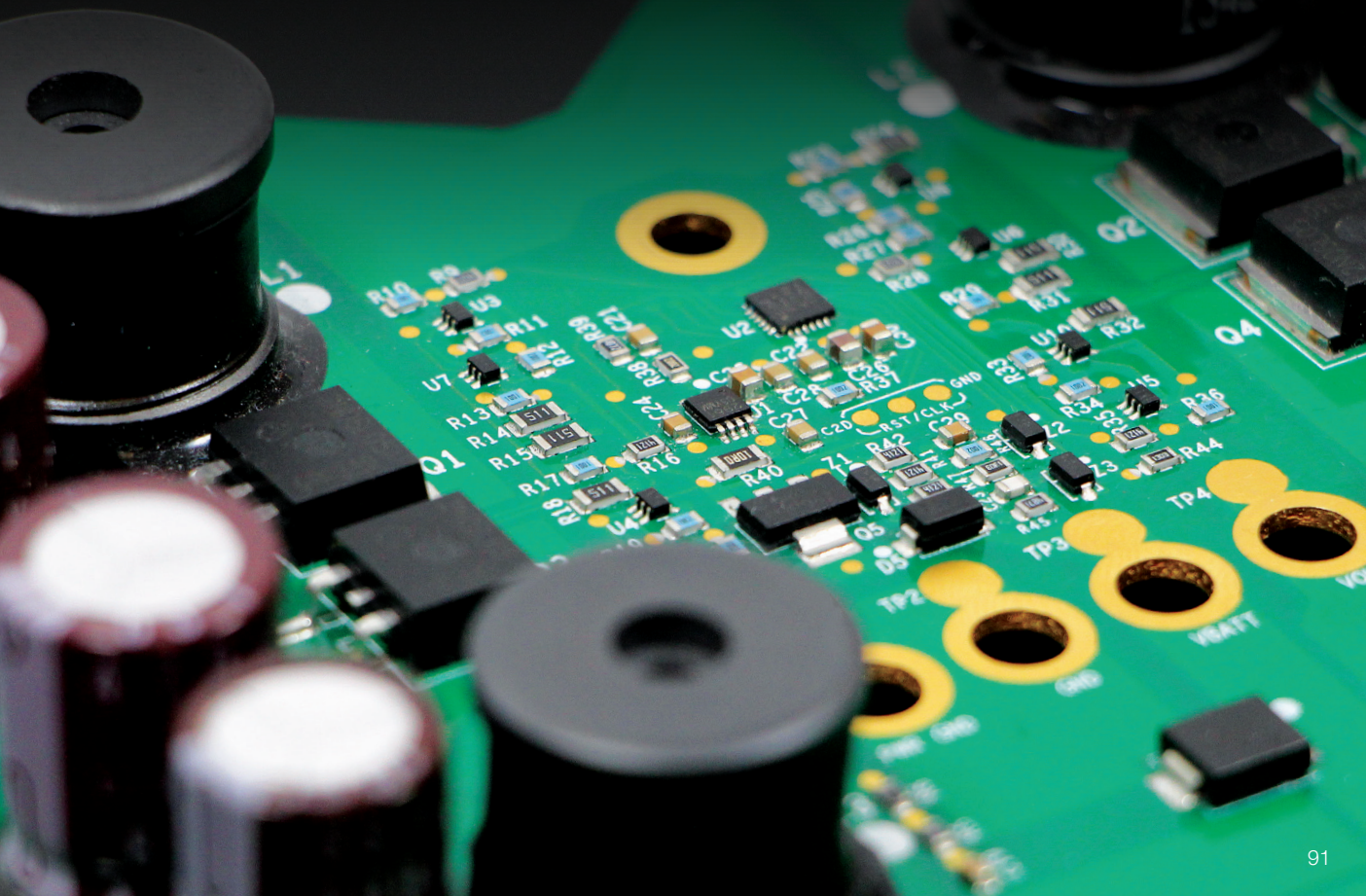
Accessory Relay



Starter Relay

TechSmart®

From day one, TechSmart® has been committed to engineering and manufacturing problem-solving parts, complete kits, and new technologies – parts that make professional technicians' jobs easier.



TechSmart® invites you to discover **The Evolution of Parts**



Like the animal kingdom, the automotive industry is competitive. To stay on top, you need to evolve, adapt, and innovate.

Our mission at TechSmart® is to help professional automotive technicians solve problems, work more efficiently, and be more successful.

To do that, we consult with professional technicians around the country and engineer enhanced engine control products with them in mind. When we learn that a new technology, new product category, or problem-solving improvement is needed in the bay, we bring a high-quality product to market as swiftly as possible.

Our latest campaign, The Evolution of Parts, showcases eight products that exemplify our mission. You'll recognize them in the coming pages by their 'Discover the Evolution of Parts' badge at the bottom of the product page.

Each of them was the result of a conversation with a professional technician. Each was designed to solve a problem. Each underwent rigorous testing to ensure performance and longevity. Each is proof that The Evolution of Parts is happening.

TechSmart® offers more than 850 exclusive parts in 120+ categories. As you can see, we specialize in parts that are problem solvers, complete kits, and new technologies.

Problem Solvers

- Automatic Transmission Shifter Cover
- Battery Current Sensor
- Brake Booster Vacuum Sensor
- Daytime Running Light Module
- Diesel Injector Sleeve
- EGR Transducer
- Electronic Diverter Valve
- Engine Coolant Air Bleeder Valve
- Fuel Injection Control Module
- Fuel Level Sensor
- Governor Pressure Sensor
- Headlight Wiring Harness
- HVAC Air Door Actuator
- Keyless Entry Transmitter
- Knock Sensor Wiring Harness
- Leak Detection Pump
- Oil Level Sensor
- Oil Separator Kit
- Overrunning Alternator Pulley
- Power Distribution Center
- Shift Interlock Actuator
- Steering Column Shift Tube
- Tail Light Circuit Board
- Thermostat Housing Assembly
- Third Brake Light
- Turbocharger Actuator
- Windshield Wiper Linkage
- Wiper Control Module

Complete Kits

- Alternator Decoupler Pulley Tool Kit
- Brake Master Cylinder Reservoir Service Kit
- Diesel Valve Cover Gasket Kit
- DISA Valve Repair Kit
- EGR Pressure Feedback Hose Kit
- EGR Repair Kit
- EGR Tool Kit
- Expansion Tank Service Kit
- Fuel Filter Primer Housing Seal Kit
- Fuel Pressure Regulator Upgrade Kit
- Fuel Pressure Warning Light Kit
- Gear Repair Kits
- Governor Pressure Sensor & Solenoid Kit
- HEI Harness Repair Kit
- Ignition Coil Repair Harness
- MAF Sensor Repair Kit
- PMD Relocation Kit
- Speed Sensor Harness Repair Kit
- Throttle Position Sensor Repair Kit
- Trunk Hatch Handle Repair Kit
- Variable Intake Manifold Actuator Repair Kit
- VVT Chain Tensioner Kit

New Technologies

- Electronic Throttle Body
- Headlight Level Motor
- Headlight Level Sensor
- HID Ballast
- Horizontal Fuel Conditioning Module
- Hybrid Drive Coolant Pump
- Park Assist Sensor
- Power Liftgate Actuator
- Ride Height Sensor
- VVT Cam Phaser
- VVT Solenoid

Alternator Decoupler Pulley Components

Overrunning Alternator Pulleys

The Problem

Replacing certain overrunning alternator pulleys requires replacing the entire alternator assembly.

TechSmart's Response

Saving you time and money on a full repair, TechSmart's Overrunning Alternator Pulley (OAP) allow you to replace the damaged part without replacing the entire assembly. Once installed, TechSmart's OAP will reduce stress on the belt drive system, leading to improved performance and a smoother, quieter ride.

- Allows you to replace only failed part instead of entire alternator
- High-quality material ensures performance under any condition

Alternator Decoupler Pulley Tool Kit

With TechSmart's Alternator Decoupler Pulley Tool Kit, you'll have all the tools needed to service the alternator decoupler pulley in one easy-to-find place. With a complete range of 23 different Torx, spline, and hex adaptors that fit most alternators, TechSmart's Alternator Decoupler Pulley Tool Kit is the most complete kit in the market today.



G93005

Ford Escape 2007-05
Mazda Tribute 2006-05
Mercury Mariner 2007-05

VIO over 170,000



Z93013

Fits most domestic
& import applications

The Problem

A weakened stock spring can cause hard starting, stalling, poor fuel mileage, and poor acceleration. On top of that, the resulting drop in fuel pressure caused by the weakened spring can damage the injector.

TechSmart’s Response

To make repair easier, our “Blue Spring” Fuel Pressure Regulator Upgrade Kit includes everything you need to reseal the fuel filter housing: our blue spring, O-rings, and all the necessary hardware.

Increases fuel pressure by 10-15 PSI, maximizing performance and injector life

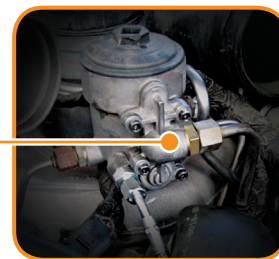
Comes complete with gasket, O-rings, and hardware for ease of installation



R81001
6.0L Ford Trucks (07-03)
V10 over 725,000

Increased Pressure

Once installed, our blue spring will increase fuel pressure by 10-15 psi, eliminating potential for injector damage.



UNIQUELY BUILT
TO **LIVE LONGER.**



This part is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

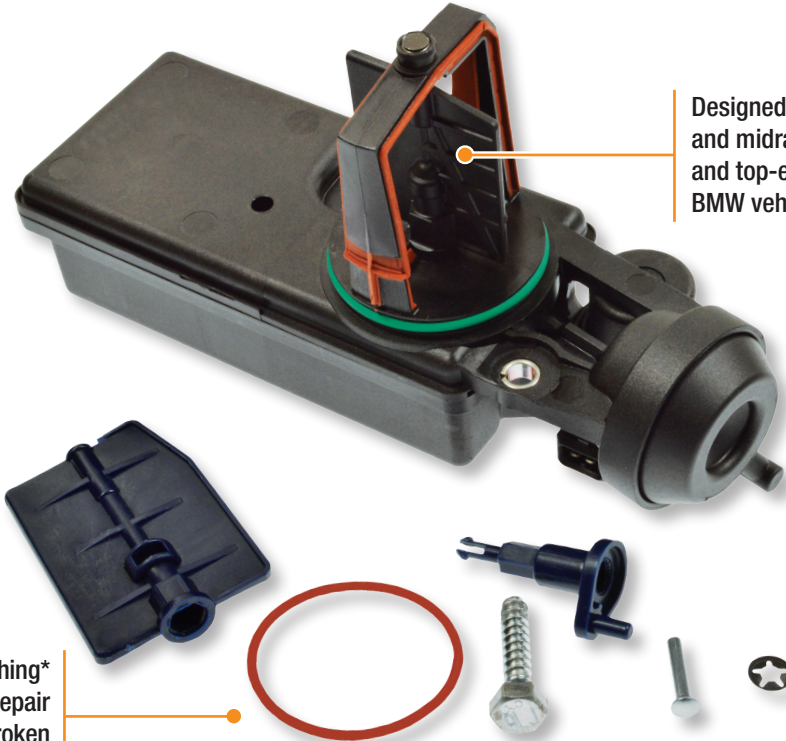
DISA Valve Repair Kits

The Problem

The DISA valve flap can become stripped over time. When that happens, the vehicle may idle roughly, lose power, or display a diagnostic trouble code. Repair requires replacing the entire assembly.

TechSmart's Response

Saving you time and money, TechSmart's DISA Valve Repair Kits include everything* you need to replace only the valve: new flap, flap hinge, hinge pin, retaining clip, O-ring, and extractor screw.



Designed to restore low and midrange torque and top-end power on BMW vehicles

Includes everything* needed to repair stripped or broken DISA valve flaps

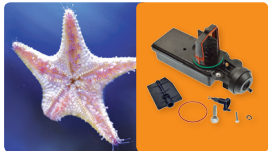
F66002

BMW (12-01)

VIO over 670,000

* Kit only, actuator not included.

REPLACES ONLY THE DAMAGED PART.



This product is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

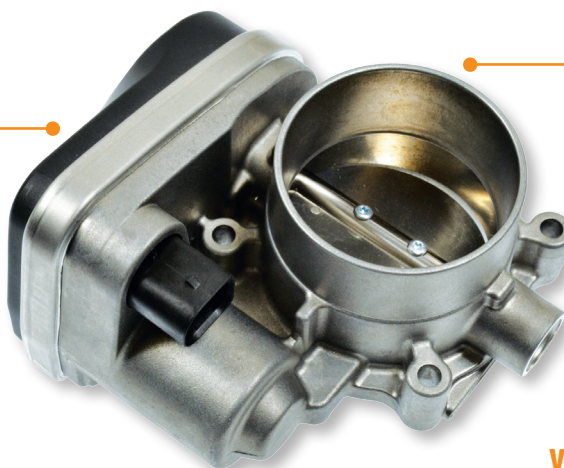
The Problem

Electronic throttle bodies have high failure rates. When the original fails, it can affect a vehicle's power, fuel economy, and drivability.

TechSmart's Response

Meeting the demand for high-quality replacements, TechSmart's line of Electronic Throttle Bodies includes more than 130 direct-replacement units and covers more than 65 million VIO. To ensure quality and reliability, each unit is 100% NEW, never remanufactured. Plus, with our units, you won't encounter comebacks due to worn items in a partial rebuild.

Undergoes extensive testing to ensure quality and reliability out of the box

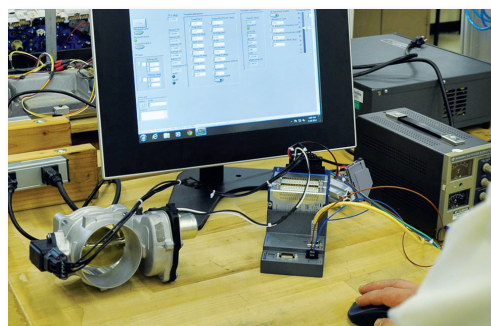


NEW, never remanufactured, which maximizes performance and extends service life

S20120
Chrysler (10-06)
Dodge (11-05)
VIO over 1.9 Million

Superior Testing, Extensive Coverage

TechSmart's Electronic Throttle Bodies undergo extensive in-house testing at SMP's engineering department in Long Island City, NY. There, our engineers look at flow tests and make sure each unit meets our high performance standards. The result is a high-quality replacement with coverage for an array of domestic and import vehicles, including but not limited to Audi/VW, BMW, Ford, Toyota, and GM.



TechSmart® engineer performing TPS output test

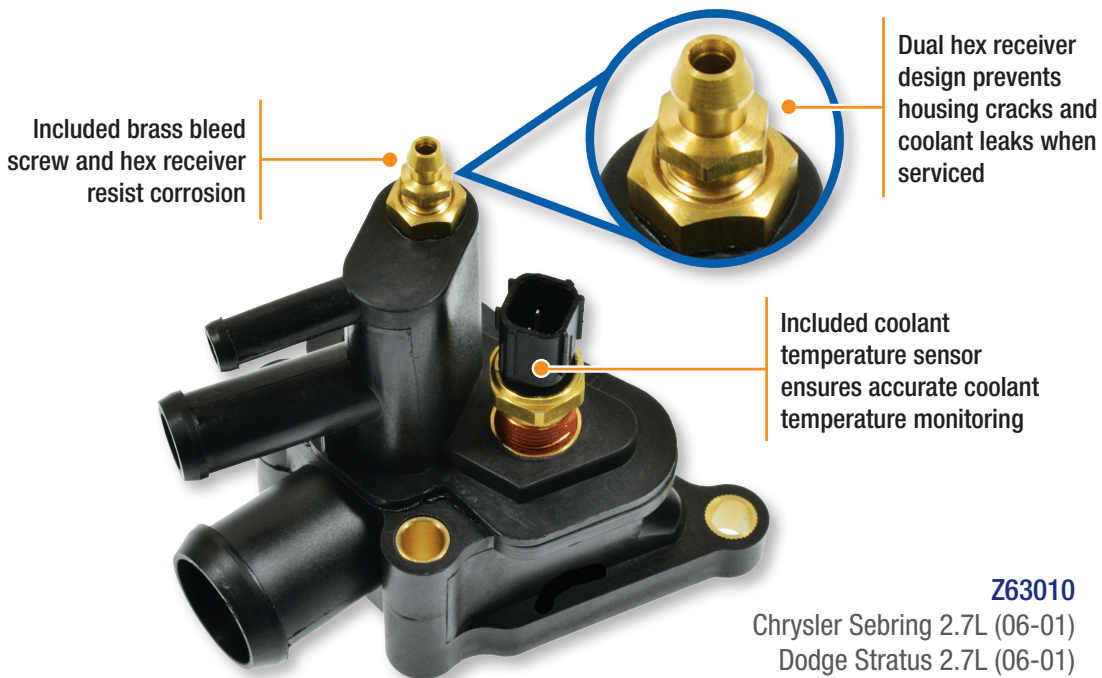
Engine Coolant Air Bleeder Valves

The Problem

Because air-coolant bleeders are located on top of Chrysler 2.7L engines, they are exposed to hot and cold conditions. The constant change in temperature can have a domino effect of problems. First, the housing can weaken, causing the bleed screw to stick. Then, the excess force needed to remove the stubborn bleed screw can crack the housing, which can lead to coolant leaks.

TechSmart's Response

To make it easier for you to remove the bleed screw, our engineers added an extra hex receiver to the bleed screw base of our Engine Coolant Air Bleeder Valve. Now, you can hold the bleed valve in place with one wrench while turning the bleed screw with another. With less stress, there's less chance of cracking the housing. Even better, TechSmart® pairs the housing with a new coolant temperature sensor and gaskets, so you'll have everything you need for a complete replacement.



Z63010

Chrysler Sebring 2.7L (06-01)

Dodge Stratus 2.7L (06-01)

VIO over 450,000

EVOLVED
TO MAKE LIFE
EASIER.

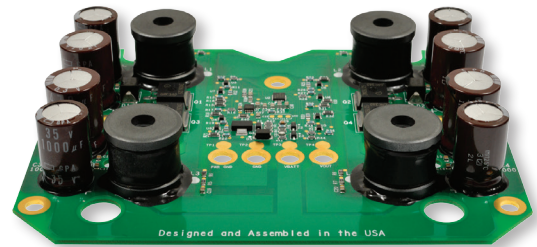


This product is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

The Problem

On select Ford trucks, the low-quality electronics on the OE and competition's Fuel Injection Control Modules can overheat and lead to failure. Another common cause of failure with OE units is vibration.



R76001
Ford 6.0L Diesel Trucks (10-01)
VIO over 800,000

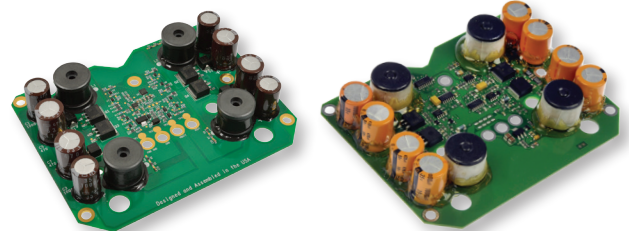
TechSmart's Response

Designed from the ground up at our state-of-the-art manufacturing facility in Orlando, FL, our Fuel Injection Control Module (FICM) Power Supply surpasses its counterparts in quality.

- Re-engineered circuit board layout
- Higher-quality electronics reduce excess heat
- Four large coils on the circuit board that exceed OE specifications
- Gold-plated contacts for greater energy transfer
- Built-in load dump protection for reduced high-voltage interference
- No programming necessary
- New, NOT Remanufactured
- Designed and manufactured in the U.S.A.
- Eliminates need to replace entire module
- Components epoxied in place to help prevent vibration-related failures

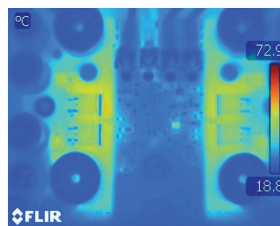
Featuring a re-engineered layout, the circuit board is constructed with higher-quality electronics that can protect critical components from excess heat. For proof, look at these thermal images. They were taken 1 minute after the modules were loaded during a cold-start simulation. Blue indicates cooler temperatures. Red indicates hotter.

As you can see, our Fuel Injection Control Module Power Supply distributes heat more evenly, keeping diodes and other critical components cooler and preventing the failure that can occur in competitors' units.

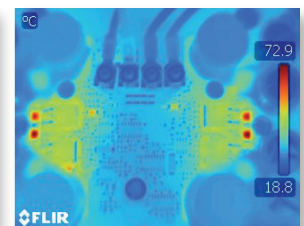


Our Module

Competitor's Module

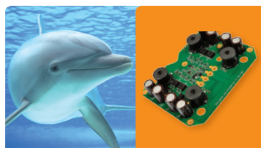


Our Module



Competitor's Module

WIRED TO BE
SMARTER.



This product is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

Headlight Level Sensors

The Problem

Failed headlight level sensors can cause the beams to point too high or low, creating dangerous driving conditions for your customers and other drivers.

TechSmart's Response

As direct replacements for the failed OE sensors, TechSmart's Headlight Level Sensors work with the vehicle's self-leveling headlight system to adjust the beams to the appropriate height.

Direct-fit replacement restores headlight self-leveling system function for improved visibility



B71001
BMW (10-99)
Mini Cooper (10-99)
VO over 2 Million

Once installed, the sensors can even compensate for headlights that have shifted because of a loaded trunk.



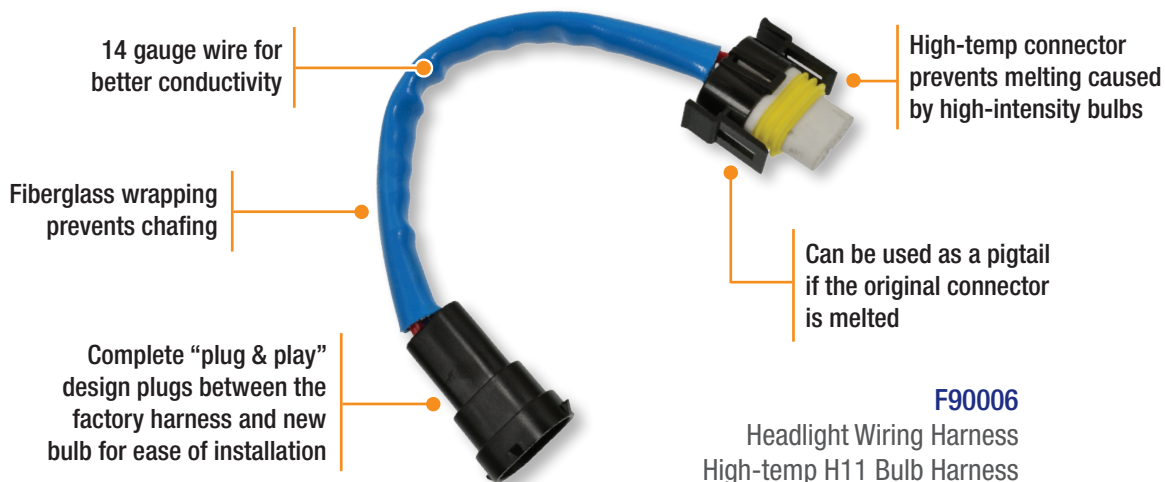
Tech Tip: To prevent broken linkage, check the mounting bracket for excess corrosion and rust. If you notice any, clean it off with rust penetrant.

The Problem

The heat generated by modern OE automotive light bulbs can melt the bulb's connectors.

TechSmart's Response

To prevent melting, TechSmart's Headlight Wiring Harnesses have high-temp connectors that can withstand extreme heat. The harnesses also have 14-gauge wire for better conductivity and a "plug & play" feature that lets you plug the harness right between the factory harness and new bulb. You can even use the harness as a pigtail if the original connector is melted. TechSmart's line of headlight harnesses covers the following high-temp bulbs: H1, H3, H4, H7, H11, 9004, 9005, 9006, 9006XS, and 9007.



F90006
Headlight Wiring Harness
High-temp H11 Bulb Harness

Part #	F90001	F90006	F90007	F90008	F90009	F90010	F90011	F90012
Bulb #	H7	H11	H7	9005	9006	9004 & 9007	9003 & H4	H1 & H3

ABLE TO HANDLE
EXTREME
TEMPERATURES.



This product is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

HID Headlight Ballast

The Problem

Despite their superiority to halogen headlights, HID Headlights can still fail, typically from overheating, moisture intrusion, damage from a frontal collision, or burning out from repeated duty cycles. If one of those scenarios occurs, it can cause the system to become inoperative, creating reduced visibility and safety concerns for motorists.



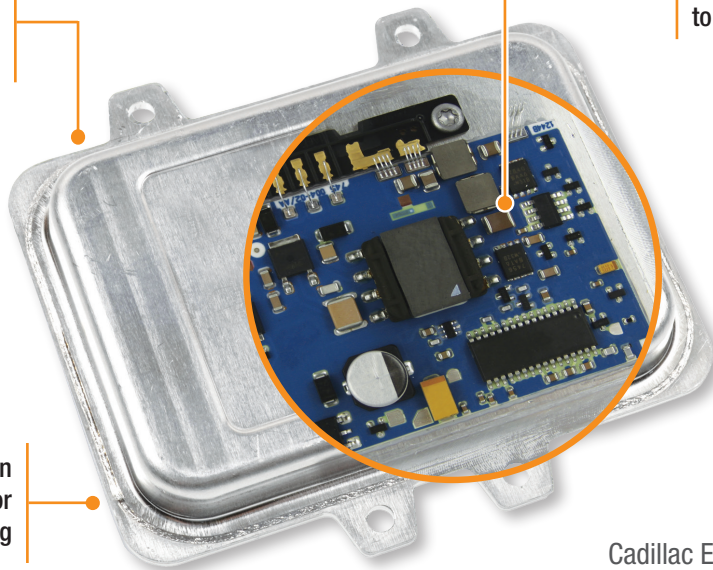
TechSmart's Response

To help restore proper lighting function to HID light systems, TechSmart® created OE-Exact Match HID Headlight Ballasts. That means they are direct-replacement parts that match the fit, form, and function of the originals. Plus, as DOT-certified parts, our HID Headlight Ballasts comply with Federal Motor Vehicle Safety Standards.

Heavy-duty casings around electronics ensure durability

Internal circuitry matches OE design to ensure performance

'Plug & play' design means no need for reprogramming



R66012

Cadillac Escalade (14-07)

Cadillac Escalade ESV (14-07)

Cadillac Escalade EXT (13-07)

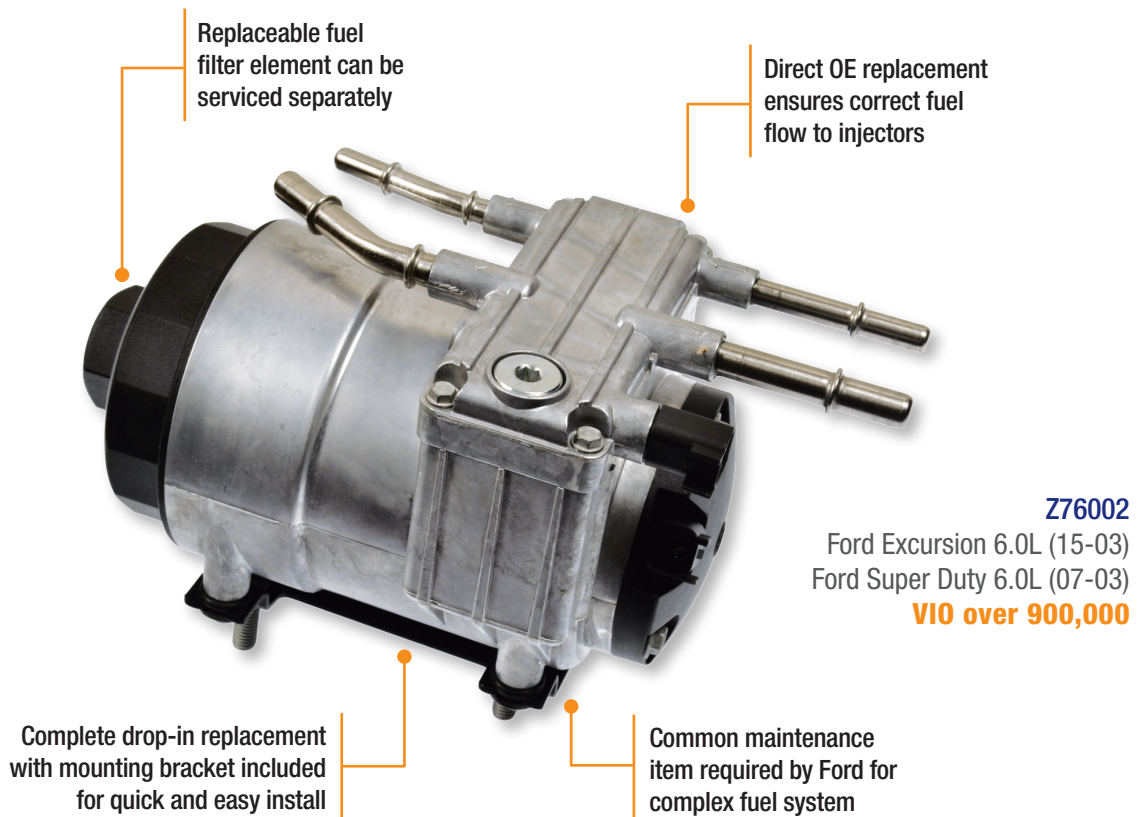
VIO over 200,000

The Problem

The Horizontal Fuel Conditioning Module (HFCM) is a part of the complex Ford 6.0L Power Stroke Engine. Like all diesel engines, it requires quality fuel. To help provide that quality, the HFCM filters out water and other contaminants before the fuel is delivered to the injectors.

TechSmart's Response

Our Horizontal Fuel Conditioning Module is a direct OE replacement that comes with a replaceable fuel filter element that can be serviced separately, making it a truly installer-friendly part.



Tech Tip: When servicing the engine, it can be easy to miss the HFCM. That's because it's not in the engine compartment, it's mounted to the frame rail on the driver's side.

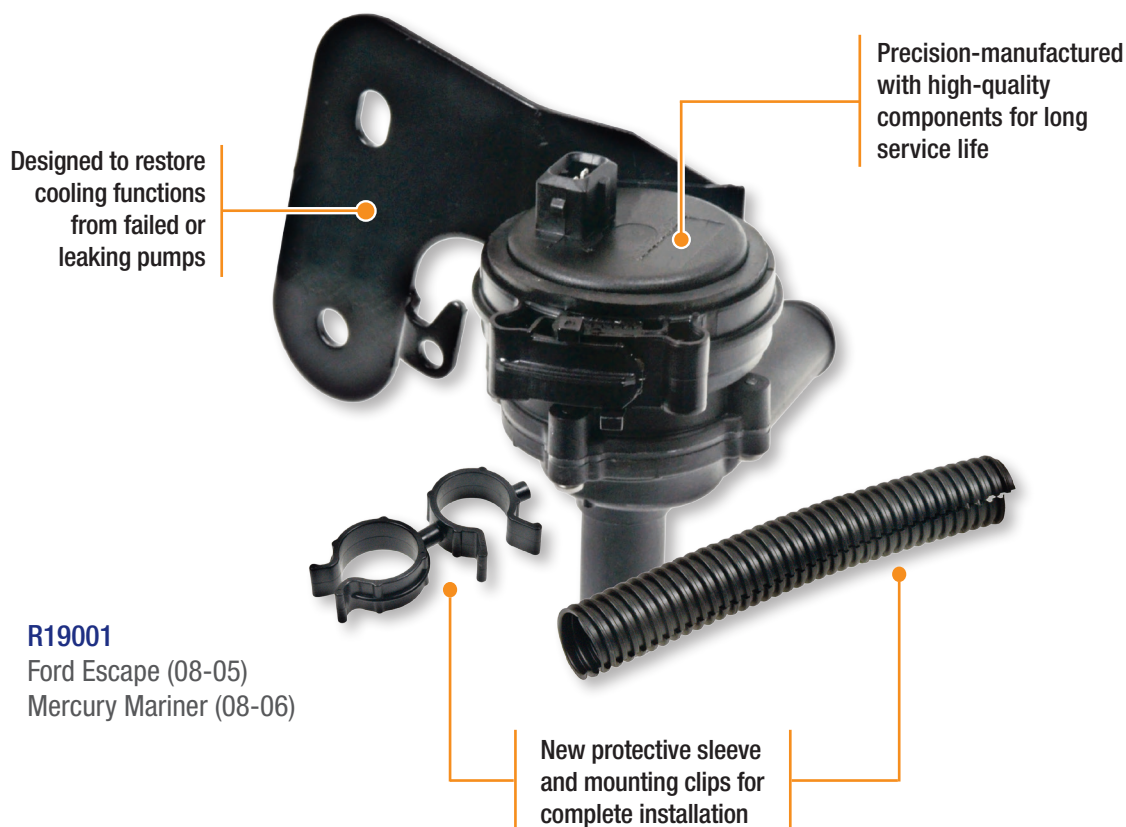
Hybrid Drive Cooling Pump

The Problem

The hybrid drive cooling pump cools the drive system on today's hybrid vehicles. When the pump fails, it can cause the transaxle to overheat.

TechSmart's Response

Giving you a high-quality solution for these repairs, TechSmart® introduced a Hybrid Drive Cooling Pump that restores proper coolant flow to reduce operating temperatures of the hybrid drive transaxle.



Tech Tip: To avoid premature pump failure, be sure to always change the coolant at the manufacturer suggested intervals.

The Problem

Park assist sensors are common failure parts, because they can be easily damaged in crashes and by water intrusion.

TechSmart's Response

To give you a better match, TechSmart's line of Park Assist Sensors was designed to replicate the OE body style. As a result, you'll have a part that fits and functions just like the original.



Advanced ultrasonic technology matches object detection range of OE units, ensuring driver is alerted of objects within vehicle's path

Matches OE design 1 to 1, ensuring direct-fit replacement and ease of installation

Designed to match OE units in fit, form, and function for peak performance

T36006
Ford/Lincoln/Mercury (11-01)
VIO over 8.9 Million



T36010
BMW 2008-02
VIO over 660,000



T36019
Mercedes-Benz 2012-98
VIO over 1.6 Million

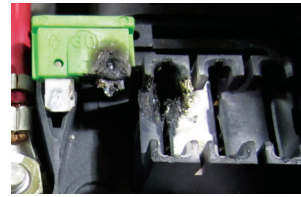


T36025
Toyota 2011-07
VIO over 170,000

Power Distribution Center

The Problem

Due to a flawed design, the competition's power distribution center experiences high degrees of resistance under load. The increased resistance generates heat that melts the plastic housing around the terminal, causing the part to fail.



Failed unit

TechSmart's Response

Manufactured at our own TS16949-certified facility in Reynosa, Mexico, TechSmart's Power Distribution Center is a 'Complete Kit' solution that features several components designed to reduce resistance and prevent heat failure.

Flexible cantilever-spring contacts ensure positive connection after multiple fuse replacements

Higher-quality fuses that don't break as easily as the competition's fuses

Copper conductors and terminals have 72% more conductivity than the brass counterparts

4 AWG copper cable can carry twice as much current as the competition

EPDM jacket can withstand abrasions and high temperatures better than the competition's PVC jacket

R45001
VW Beetle (06-03)
VW Golf (06-99)
VW Jetta (05-01)
VO over 1.4 Million



TechSmart® Fuses
Competition Fuses



TechSmart® Copper
Competition Brass



TechSmart® 4 Gauge
Competition 7 Gauge

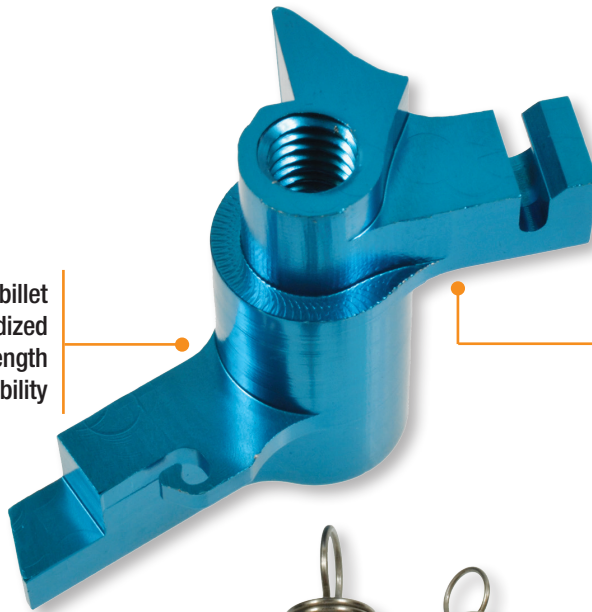
The Problem

When a plastic OE shift interlock lever breaks, it will prevent a driver from shifting their vehicle out of park.

TechSmart's Response

To help you restore PRNDL (Park, Reverse, Neutral, Drive, Low) function, TechSmart's Shift Interlock Actuators were engineered to be direct replacements for their OE counterparts. Our Shift Interlock Lever is machined out of billet aluminum and anodized for long-lasting strength and durability.

Machined out of billet aluminum and anodized for long-lasting strength and durability



No need to replace the entire shifter assembly when only the original lever fails



B05005
Chrysler/Dodge (08-05)
VIO over 1.1 Million

**MADE FOR
DURABILITY.**



This product is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

Steering Column Shift Tubes

The Problem

When steering column shift tubes wear down, drivers may have trouble shifting gears, which can lead to improper gear selection and, even worse, fractures at the tube's most vulnerable stress points. The service technicians we talk to tell us that although the problem is common the repair is complex. In some cases, it can take two hours or more to complete.

TechSmart's Response

To help you avoid doing the time-consuming repair twice, TechSmart's direct replacement Steering Column Shift Tubes are designed to be 3.2 mm at the highest stress point, which is twice as thick as the competition's unit. For a complete install, pick up the Q18002 Steering Column Shift Tube Bushing, which is made from high-strength nylon. In total, our line of Steering Column Shift Tubes covers more than 39 million VIO.

Direct OE replacements ensure fit, form, and function like the original

Designed to be 3.2 mm at highest stress point to prevent fractures



Q18001

Ford/Lincoln/Mercury (11-90)

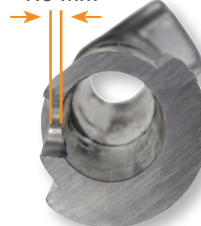
VIO over 11.6 Million



Fractures usually occur at the highest stress point

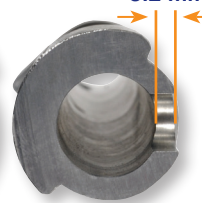
Competition

1.6 mm



TechSmart®

3.2 mm



Cross-section shows TechSmart® is 2X thicker where it counts

MADE THICKER FOR TOUGHNESS.



This product is featured in our Evolution of Parts campaign.

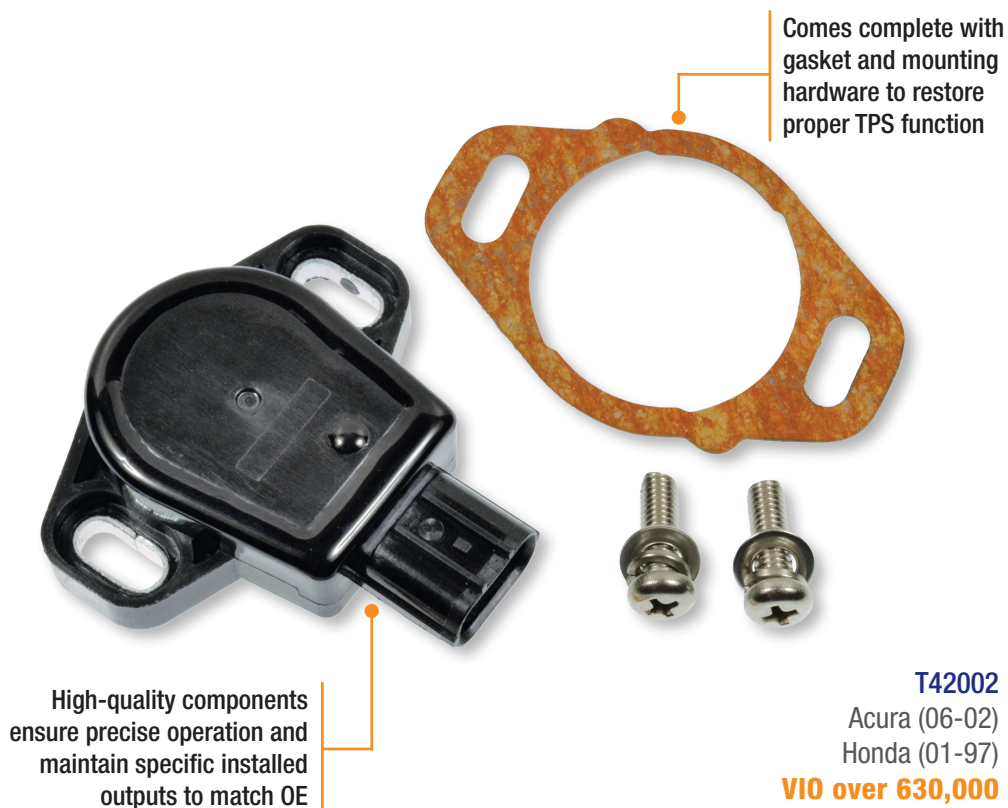
Discover the Evolution of Parts

The Problem

When the OE throttle position sensor on select Honda and Acura vehicles fails, you have to replace the entire throttle body.

TechSmart's Response

Saving you money on a full replacement, TechSmart's Throttle Position Sensor Repair Kits come complete with everything you need to replace only the sensor, including a throttle position sensor, a gasket, and all the necessary mounting hardware.



Tech Tip: Once you remove the old rivets and install the new sensor using the included hardware, simply follow the OE service manual's TPS calibration procedure.

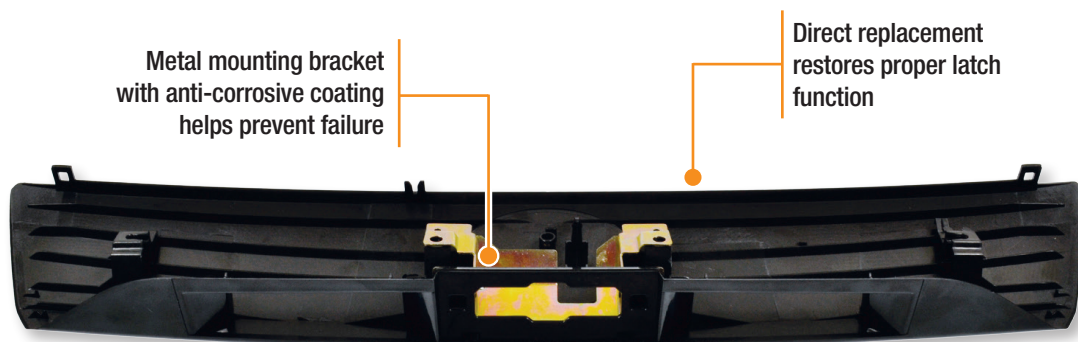
Trunk Hatch Handle Repair Kit

The Problem

The handles on certain Scion trunk hatches tend to crack near the mounting tab and split down the middle.

TechSmart's Response

Giving you a more durable and complete repair solution, TechSmart's Trunk Hatch Handle Repair Kit includes everything you need to do the job: an upgraded metal mounting bracket, an ABS plastic handle, mounting screws, and washers. TechSmart's engineers also covered the metal in an anti-corrosive coating to help prevent premature failure caused by harsh environmental conditions. The end result is a durable alternative to the plastic OE part that will protect your trunk hatch handles from future fractures.



Metal mounting bracket with anti-corrosive coating helps prevent failure

Direct replacement restores proper latch function



Comes complete with a new ABS plastic handle, bracket mounting screws, and washers for ease of installation

Z97001

Scion tC (10-05)

VIO over 280,000

POSSESSES
**SUPERIOR
STRENGTH.**



This product is featured in our Evolution of Parts campaign.

Discover the Evolution of Parts

The Problem

On Ford 6.0L diesel engines, the turbocharger actuator (a.k.a. variable geometry turbocharger (VGT) control valve) controls the flow of exhaust gases through the turbocharger. When the turbocharger actuator fails, the vanes can stick, causing the vehicle to lose power and generate too much or too little boost pressure. The end result is a damaged turbocharger.

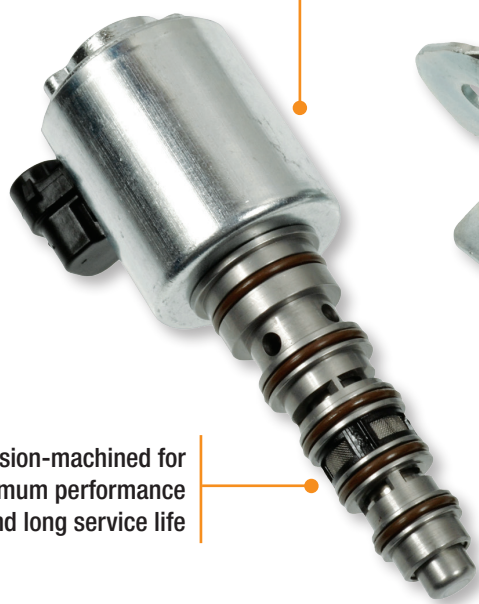
TechSmart's Response

Our Turbocharger Actuator is a direct-fit replacement for the damaged OE part, so you get a part that fits and functions like the original.

High-quality, direct-replacement part restores engine power and efficiency loss due to a clogged or burned out turbocharger solenoid

Includes mounting hardware for ease of installation

Precision-machined for optimum performance and long service life



R75002

Ford Trucks 6.0L (10-04)

VIO over 800,000

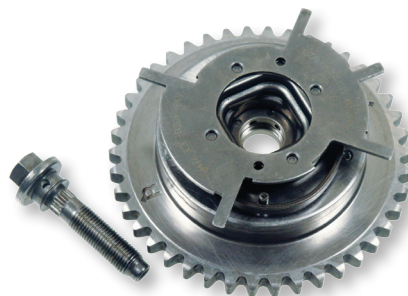
Tech Tip: When installing a turbocharger actuator on a Ford 6.0L Power Stroke engine, make sure to lubricate the O-rings using fresh engine oil.

To supply professional technicians with the latest parts they need for their jobs, TechSmart® is continually investing in high-tech categories. That much is apparent from our line of variable valve timing (VVT) components. Here are a few solutions we've engineered for this high-tech category.

VVT Cam Phaser

TechSmart's Engine Variable Timing Unit (a.k.a. Cam Phaser) was introduced to be a direct replacement for the damaged OE unit. To make installation even easier, TechSmart® also introduced the Q21002 Cam Gear Wedge Tool to lock the sprocket in place for ease of installation.

- Precision-machined to ensure accurate variable valve timing, correct rough idle, and restore drivability



S21001

Ford 4.6L & 5.4L V8 (10-05)

VIO over 3.2 million

VVT Chain Tensioner Kits

TechSmart's Variable Valve Timing (VVT) Chain Tensioner Kits come with a new gasket and seal, so you can service the chain tensioner without needing to buy multiple parts from the dealer.

- Comes with new gasket and seal for ease of installation



S29001

Audi/VW (06-01)

VIO over 300,000

VVT Solenoids

When solenoid screens become clogged, vehicles may experience rough idling, lack of power, and engine misfiring. To remedy those symptoms, TechSmart's line of Variable Valve Timing Solenoids maximize horsepower and torque curves while reducing emissions and improving vehicle efficiency.

- Eliminates rough idle, lack of power, and misfire due to clogged or failed variable valve timing solenoids



L53001

Ford Trucks (10-05)

VIO over 2.4 million

TPMS

BWD® and Intermotor® offer a complete TPMS line featuring mounting hardware, service kits, shop tools, OE-Matching Direct-Fit TPMS Sensors, and QWIK-SENSOR™ Multi-Coverage Programmable TPMS Sensors.

About TPMS

An Important Safety Warning Light Goes Unnoticed



The Tire Pressure Monitoring System (TPMS) is a safety device that measures, identifies and warns motorists when one or more of their tires are significantly under-inflated. If the system finds a tire with low air pressure, a sensor with a dead battery, or a system malfunction, it will illuminate the TPMS warning light on the dash. While this is common knowledge to technicians, it isn't as well-known among motorists, as evidenced by the results from a recent survey on TPMS:

96%

Drivers who consider under-inflated tires an important safety concern

89%

Drivers who believe properly inflated tires and a warning light system could save their lives

42%

Drivers who were unable to identify the TPMS symbol

One TPMS Supplier. One Complete Program. Real Clarity.

To help your customers with this important yet often overlooked category, BWD® and Intermotor® offer a complete TPMS line featuring mounting hardware, service kits, shop tools, OE-Matching Direct-Fit TPMS Sensors, and QWIK-SENSOR™ Multi-Coverage Programmable TPMS Sensors. Here are the takeaways from our two programs:



**BWD® OE-Matching
Direct-Fit TPMS Sensors**

98% coverage and ready-to-Install
with no programming required



**QWIK-SENSOR™ Multi-Coverage
Programmable TPMS Sensors**

94% coverage and works with
all major TPMS tools



Pre-programmed

BWD® OE-Matching TPMS sensors come programmed from the factory



Ready to Install

BWD® OE-Matching TPMS sensors can be installed right out of the box



OE-Relearn Procedure

Once installed, follow the OE-relearn procedure using any major TPMS programming tool



Program Before Installation

Program QWIK-SENSOR™ TPMS sensors before installation using a compatible TPMS programming tool



Programming Procedure



Once programmed, the QWIK-SENSOR™ sensor containing the exact matching OE protocol, can be installed



OE-Relearn Procedure

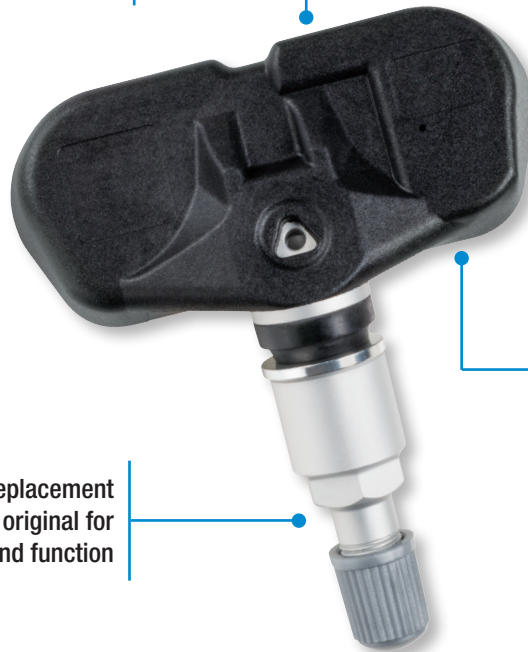
Once installed, follow the OE-relearn procedure using any major TPMS programming tool

In addition to the OE-relearn process, both BWD® OE-Matching and QWIK-SENSOR™ TPMS sensors can be ID-cloned, technician's choice.

BWD® OE-Match Direct-Fit TPMS Sensors

Our full TPMS program includes TPMS service kits, accessories, mounting hardware, tools, and the perfect TPMS solution: OE-Match Direct-Fit TPMS Sensors. With 120+ units providing more than 98% coverage, these sensors are engineered to match the fit, form and function of the vehicle's original sensor.

Military-grade lithium battery ensures maximum battery life and sensor performance



Preprogrammed at the factory with exact OE protocol, so it's ready to install out of the box

Direct-fit replacement matches the original for fit, form, and function

Works with All Major TPMS Tools

BWD® OE-Matching TPMS sensors come programmed from the factory, so they can be installed right out of the box. Once installed, just follow the OE-relearn procedure using any major TPMS programming tool.



* Product names, logos, brands, and other trademarks featured or referred to are the property of their respective trademark holders. These trademark holders are not affiliated with SMP TechSmart or our products.

Complementing our BWD® and Intermotor® OE-Match TPMS Sensors, our line of QWIK-SENSOR™ Multi-Coverage Programmable TPMS Sensors gives technicians ease of programming, advanced technology, and 94% coverage for domestic and import vehicles.

Fully assembled and ready for install after programming



All major TPMS tools are able to Program, OE-Relearn, and ID-Clone QWIK-SENSOR™

Available in both rubber and metal valve stems to match proper application

Programming is Easy

QWIK-SENSOR™ sensors come fully assembled from the factory, ready for programming and installation. QWIK-SENSOR™ can be programmed, OE-relearned, and ID-cloned using any major TPMS tool including ATEQ, Bartec, Snap-On, Orange, and TechSmart.

1. Place QWIK-SENSOR™ multi-coverage sensor in front of antenna of TPMS tool

2. Program QWIK-SENSOR™

3. Once programmed, OE-Relearn or ID-Clone activated QWIK-SENSOR™ – now sensor is ready for installation



T55001 TPMS Relearn and Scan Tool Kit

The Techsmart® T55001 TPMS Relearn and Scan Tool performs the relearn process on import and domestic vehicles and displays complete sensor information, including tire pressure, tire temperature, broadcast frequency, battery status, sensor ID and tire location. The only information required to operate this tool is 'Vehicle Make'.



- Built-in TPMS relearn procedure enables technicians to save time and speed up repair process
- Includes trigger magnet for activating sensors that require magnetic wakeup
- Easily updatable using a USB-equipped PC with internet access or our micro SD card option
- Reads and displays TPMS Diagnostic Trouble Codes (DTC) for Asian vehicles
- ECU unlocking for Toyota/Acura family of vehicles
- TPMS technical support
- Additional features include key fob testing function, built-in multilingual translations, and radio frequency interference detection
- Clones original sensor by transferring ID number (electronically or manually) onto clone-able sensor
- TPMS reset via OBDII on applicable vehicles
- Compatible with T55001MT OBDII Adapter (sold separately) to enable relearn on select Mitsubishi vehicles that require use of OE scan tool only

Programming QWIK-SENSOR™ is simple with the TechSmart® T55003. In a few simple steps, the technician can load the correct protocol on to the QWIK-SENSOR™ Multi-Coverage Programmable Sensor. Once the protocol is loaded, the ID of the failed unit can be ID cloned on to the sensor in under a minute.



T55003

- Full-function Gen II TPMS activation and programming tool with cloning capabilities – technician's choice
- OBDII function removed to create powerful mid-level shop tool with expensive features to diagnose tire pressure problems
- All-in-one Scan, Trigger, Activate, and ID-Clone tool
- Scan/Trigger OE and aftermarket sensors
- PC-based software ensures that tool stays up to date when new TPMS sensors are introduced each year
- Large keypad makes it easy to select and input
- Menu includes Make, Model, Year and Programming. Ensures the correct frequency to eliminate cross talk
- Rechargeable battery and charger included

TPM5001 TPMS Service Tool Kit

To complement our TPMS Service Kits, our TPM5001 TPMS Service Tool Kit is a high-quality kit that contains all the tools necessary to manage your TPMS service.



TPM5001

- **1/4" Torque Wrench 30-150 in/lbs**

Our 1/4" tool complete with 11mm and 12mm deep sockets offers a wider torque range which helps ensure accurate TPMS nut installation. Also includes 1/4" T20 Torx socket, preset at 35 in/lbs for European valve screw applications.

- **1/4" Torque Screwdriver**

Our 1/4" torque screwdriver is preset to 12 in/lbs for use when replacing rubber snap-in valve stems for various TPMS sensors. Includes 4X T10 Torx bits and 2" extension.

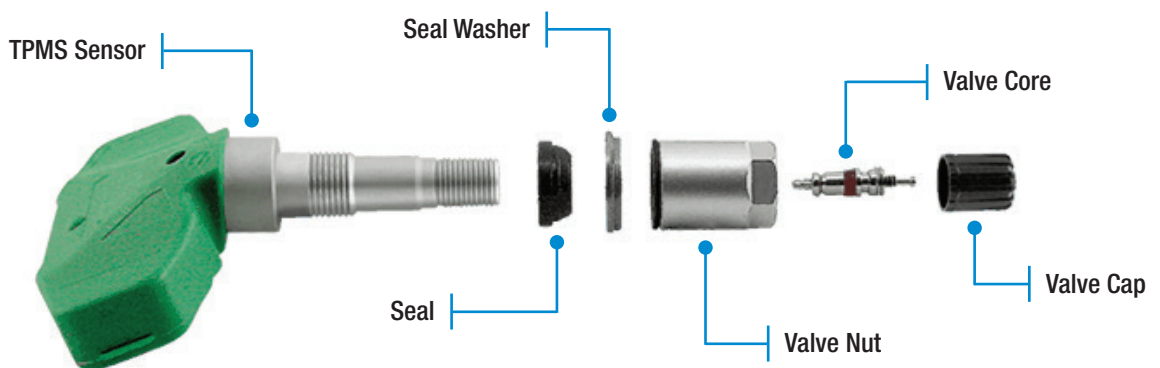
- **Valve Core Torque Tool**

Reduce come backs with this calibrated precision tool (4 in/lbs) for TRA recommended torque specifications on TR C1 valve cores, including nickel-plated cores. Serves as both a valve core remover and installer.

- **Rugged Tool Case**

Our complete kit also includes thumb valve core installation and bleeder tool, grommet pick, grommet removal and installation tool all neatly packed and protected in a molded tool case.

Every time a tire is removed from the wheel you should replace TPMS service parts such as the valve stems, seals, washers, nuts, valve cores, and caps. BWD® and Intermotor® offer an array of such parts to complement your TPMS repairs.



We're committed to quality testing and product validation for all of our parts. TPMS is no different. We subject our TPMS sensors to extensive environmental testing using SAEJ2657 specifications. As a result, we're able to manufacture TPMS sensors that will perform accurately and have a long service life.

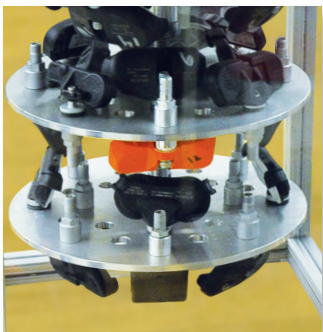
Tests, Tests, and More Tests

To see how committed we are to product validation, here's a list of tests that we perform on our TPMS sensors:

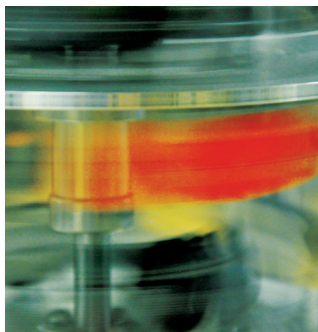
- Accelerated Life Test
- Contamination Test
- Drop Test
- Extreme Temperature Test
- Frost Test
- Humidity Test
- Mechanical Vibration Test
- On-Vehicle Live Test for 168+ hours
- Operational Temperature Test
- Proof Pressure Test
- Rapid Deflation Test
- Salt Fog Test
- Thermal Shock Test
- Vehicle Speed Test (centrifugal force)

A Closer Look at Our TPMS Accelerated Life Test

During normal usage, TPMS sensors are only used for a few hours per day. To make sure our TPMS sensor batteries last, we subject them to an Accelerated Life Test. It's a continuous test that runs for 24 hours a day, 7 days a week.



First, we load the TPMS sensors in the testing chamber



Next, we run the test for 24 hours a day, 7 days a week



The result is a TPMS sensor battery that lasts, which keeps this important safety feature running

The Most Powerful Tool Not in Your Toolbox



Check out BWDBrand.com, TechSmartParts.com, and IntermotorOnline.com. These exciting sites are more popular than ever, and at the heart of each website is our powerful and flexible, best-in-class eCatalog. Here are some of our eCatalog's most powerful features:

- Multiple search options with extra-fast returns featuring keyword and part number search with auto-fill
- Expanded rich content including multiple-view images, enhanced installation instructions, product videos, live-link related parts, and more
- Powerful filtering tools for every search
- Optimized for desktop, tablets & smartphones so you can access info wherever you're working

SMP® Parts App a Hit with Users

Last year, we launched the SMP® Parts App. Featuring built-in tools such as UPC code and VIN scanners, our App gives users access to every SMP® part and digital resource. Based on reviews from automotive professionals, the award-winning SMP® Parts App has been an overwhelming success.

SMP® Parts App 2.0 will be released in early 2016 with an enhanced user interface and exciting new tools such as license plate lookup tool, competitor UPC scan, cross-reference search, secure login for private features and more!

What Users are Saying

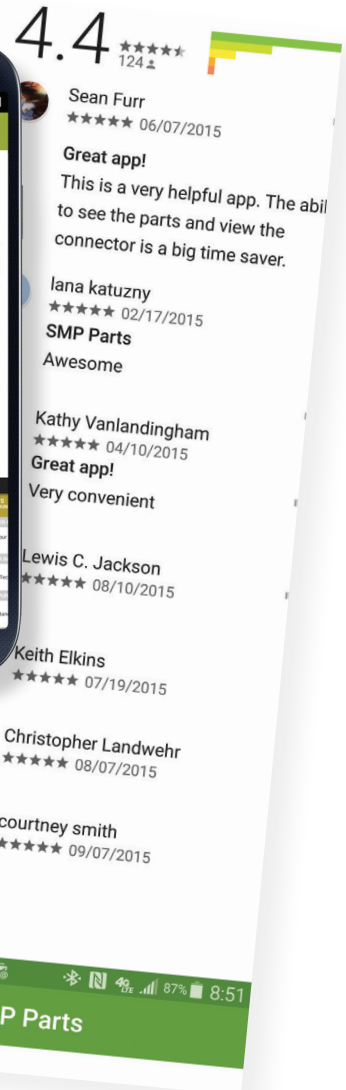
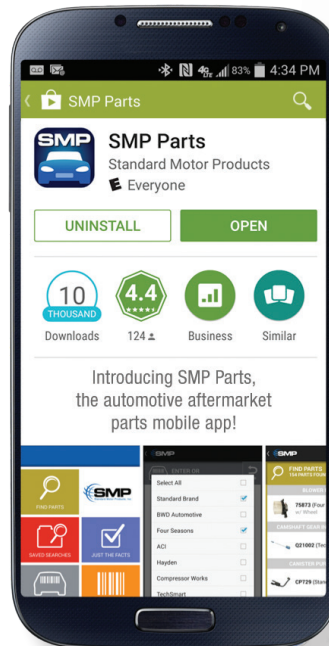
Sean Furr on Google Play Store

"The ability to see the parts and view the connector is a big time saver."

RB Auto on App Store

"I like the VIN scanner feature, and it's cool to find a part and also be able to view an installation of that part right in the app."

To see what the buzz is about, scan to download.



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