### GAS FUEL INJECTION PROGRAM

1

Standard® offers over 2,300 gasoline fuel injection components, providing everything needed for a complete repair

2

Every Standard® Gas Fuel Injector is 100% new, never remanufactured

3

Standard® fuel injection components are precision engineered and extensively tested to perfectly integrate with complex fuel systems

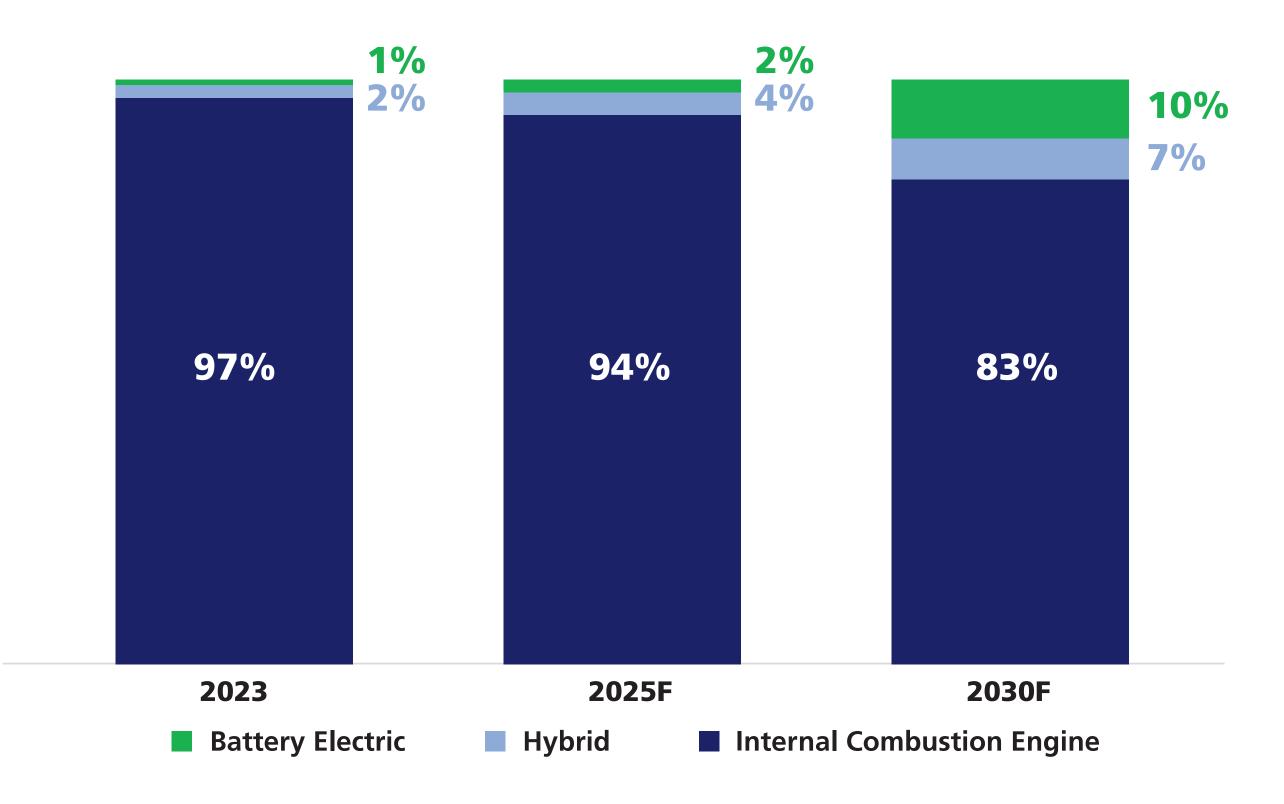
What's in your box?<sup>™</sup> Here's what's in ours.



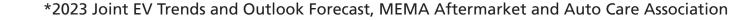
## Growing Market

Car buyers are still choosing vehicles with internal combustion engines over electric vehicles at a rate of more than 10 to 1. Compounded with the fact there are already more than 280 million vehicles on the road with ICE powertrains, fuel injection will represent service opportunities for generations.

### **Vehicle Registrations by Powertrain\***



Even by 2030, 90% of all registered light vehicles will still be equipped with internal combustion engines. Additionally, 99% of 10-12 year old vehicles will have an internal combustion engine.







Fuel Injection Market StandardBrand.com

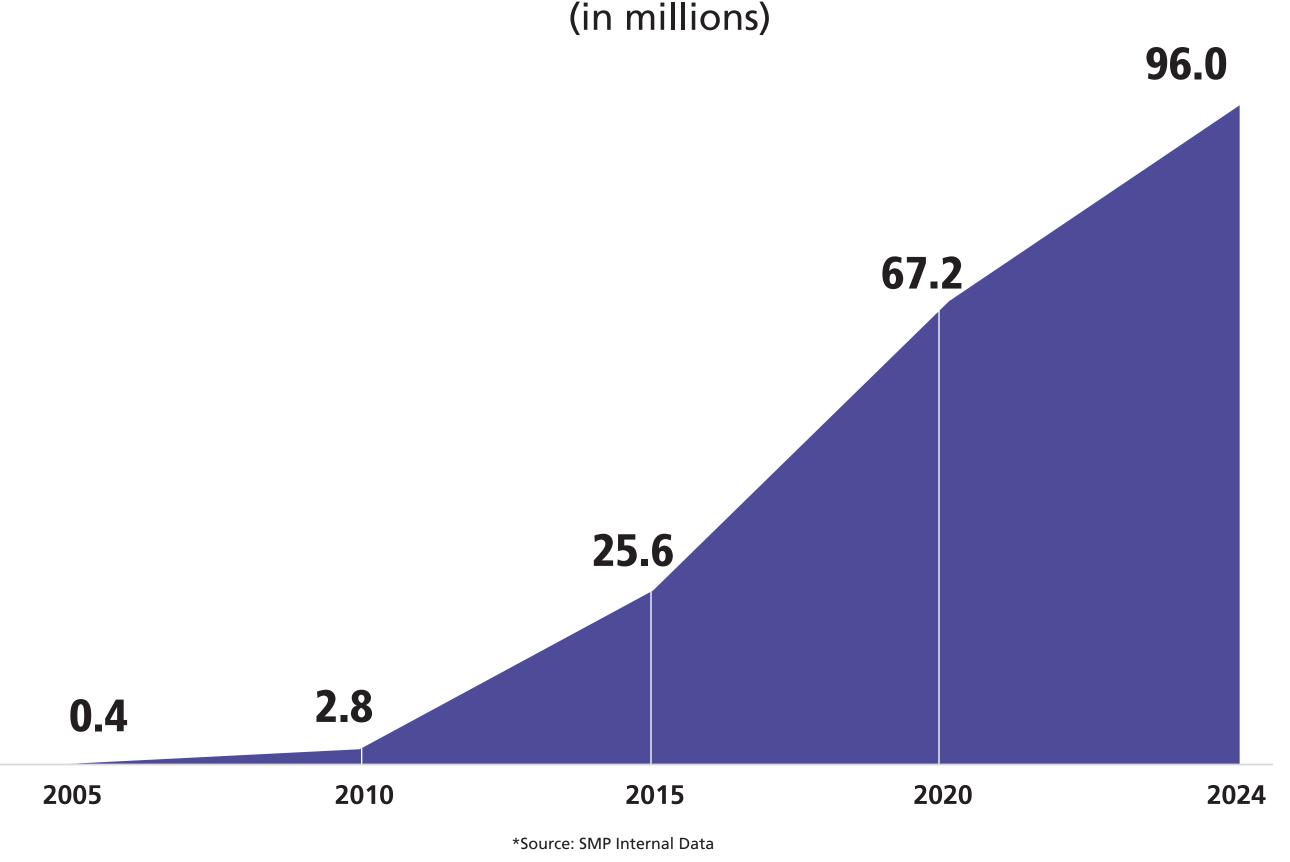
## Growing Market

Gasoline Direct Injection has been rapidly adopted by vehicle manufacturers. This newer technology helps improve fuel economy, performance and requires even higher-precision injectors compared to multi-port systems.

### **Did you Know**

Many vehicle manufacturers, including Ford and Toyota, are now using both multi-port and direct injection together on newer vehicles, meaning some popular vehicles have as many as 16 fuel injectors.





### **Service Opportunities:**

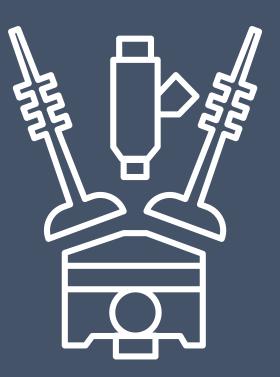
From 2015 to 2020, the number of registered vehicles equipped with GDI fuel systems grew by almost 400%! This more complex, high-pressure system will create millions of additional service opportunities as these vehicles age.



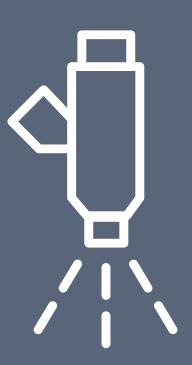
# Impact on Engine Systems



If one injector is delivering an incorrect amount of fuel, it will affect the fuel trim for the entire bank, resulting in multiple cylinders receiving incorrect fuel delivery and can cause the catalytic converter to fail



Multi-port style injectors spray fuel over the valves, cleaning them as fuel enters the cylinder – GDI injectors deliver fuel directly into the cylinder which allows carbon deposits to build up on the valve, disrupting airflow and eventually reducing overall engine efficiency



Balanced fuel delivery is crucial to proper engine operations and clean tailpipe emissions – If one injector is being replaced on a higher mileage engine, consider replacing the entire set for optimal performance



### What's New

### **GDI INJECTORS**

Vehicle manufacturers continue to introduce new engines featuring GDI technology, and Standard® is committed to introducing new Injectors for these vehicles.

For the most recent applications, check the catalog at StandardBrand.com.









### What's New

### **MFI INJECTORS**

Standard® is also continuing to develop and introduce new MFI injectors for latemodel vehicles.

For the most recent applications, check the catalog at StandardBrand.com.









### What's New

#### **RELATED PARTS**

GDI and MFI fuel injection systems consist of much more than just injectors. High-pressure fuel pumps, fuel feed lines, regulators, sensors and more all make up these complex fuel delivery systems. Standard® is here to cover it all.

For the most recent applications, check the online catalog at StandardBrand.com.



### Fuel Pump Camshaft Follower

#### **GDF724**

Toyota / Lexus Cars & SUVs (2023-19) VIO: 2.3M



### Fuel Pump Driver Module

#### **FPM138**

Mazda Cars & SUVs (2021-13) VIO: 1.6M



### Fuel Injector Retaining Bracket

#### **SK206**

Mazda Cars & SUVs (2023-13) VIO: 2.3M



### **Fuel Injector Seal Kit**

#### **SK213**

Chrysler / Dodge / Jeep / RAM (2023-15) VIO: 702K



#### **Fuel Feed Line**

#### **GDL754**

Subaru Cars & SUVs (2023-19) VIO: 1.3M



#### **Fuel Pressure Sensor**

#### **FPS151**

GM Cars, Trucks & SUVs (2022-17) VIO: 715K



## Product Spotlight

### BLUE STREAK® DIRECT INJECTION HIGH-PRESSURE FUEL PUMP KITS

Blue Streak's all-in-one GDI High-Pressure Fuel Pump Kits include all of the necessary components to do the job right the first time.

High-pressure GDI systems rely on more than just the high-pressure pump to operate correctly. We offer complete GDI High-Pressure Fuel Pump Kits so that the entire system can be replaced, ensuring trouble-free operation after the repair.



**GM Cars and SUVs** 

(2019-16) VIO: 1.6M



## Complete Program

Standard® designs, manufactures, and tests every Injector produced to precisely match the designed performance of the original injectors.

Standard's coverage of 100% new, never remanufactured Fuel Injectors is unmatched in the aftermarket.

We have a full offering of fuel injection components including Fuel Pressure Sensors, Regulators, Damper Assemblies, Fuel/Water Separator Sensors, O-ring kits, and more.



### Multi-Port Fuel Injectors (MFI)

900+ MFI Injectors

All Standard® MFI 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 and optimized fuel economy under all conditions

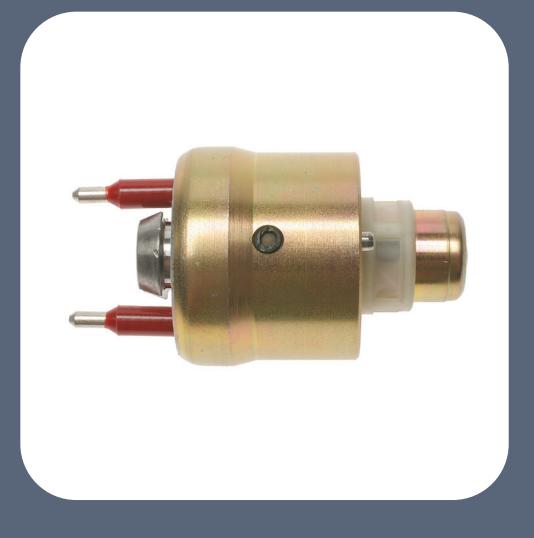


### **Gasoline Direct Injectors (GDI)**

170+ GDI Injectors

Built to deliver maximum

performance and fuel economy,
each GDI Injector is precisionengineered to match the failed OE
injector it is replacing



### **Throttle Body Injectors (TBI)**

50+ TBI Injectors

Meticulous engineering and precision machining ensures every Standard® TBI Injector matches the original it's replacing for fit, form and function to deliver optimal performance and fuel economy



### Top Movers - GDI Injectors

### IMPORT APPLICATIONS



FJ1057
Audi / VW Cars & SUVs (2018-08)



FJ1146
Hyundai / Kia Cars & SUVs (2017-12)



FJ1372
Honda Trucks & SUVs
(2020-16)



FJ1438
Hyundai / Kia Cars & SUVs (2021-15)



FJ1193
Mazda Cars & SUVs
(2018-12)





FJ1217
GM Trucks, SUVs & Vans
(2021-14)



FJ994
GM Cars & SUVs
(2011-08)



FJ1138

Ford / Lincoln
Trucks, SUVs & Vans
(2024-11)



FJ1296
GM Cars, Trucks, SUVs & Vans
(2021-14)



FJ1157
GM Cars, Trucks & SUVs (2022-12)

### Top Movers - MFI Injectors

### IMPORT APPLICATIONS



FJ484
Honda / Acura Cars & SUVs
(2011-03)



FJ585
Toyota Trucks & SUVs
(2004-99)



FJ1046
Honda / Acura Cars & SUVs (2015-08)



FJ750
Nissan / Infiniti
Trucks, SUVs & Vans
(2021-04)



FJ340 Honda / Acura Cars (2002-97)

### DOMESTIC APPLICATIONS



FJ1147
Chrysler / Dodge / Jeep / RAM (2020-11)



FJ315
GM Trucks, SUVs & Vans
(2007-99)



FJ1116

Ford / Lincoln
Cars, Trucks, SUVs & Vans
(2022-11)



FJ474
Dodge / Jeep / RAM
Trucks & SUVs
(2013-04)



FJ612
Chrysler / Dodge
Cars & SUVs
(2011-04)

## Related Components

### **GDI**

GDI fuel systems are complex and feature more parts than a traditional MFI fuel system. Standard® doesn't simply stop at injectors. We provide everything GDI-related for complete fuel system repairs.



### **High-Pressure Fuel Pumps**

GDI injectors operate up to 2,000 psi. Maintaining fuel pressure is critical to the optimal performance of GDI systems

120+ SKUs with coverage through 2024



### O-Rings, Gaskets, and Plates

The right O-rings, gaskets and GDI plates are essential to a proper system service

Import and domestic coverage



#### **Fuel Feed Lines**

Direct-fit OE replacement lines for high- & low-pressure applications

120+ SKUs with coverage through 2023



### **Injector Seal & Service Kits**

When servicing GDI injectors, new O-rings and seals are required — never reuse O-rings and seals from an injector you are replacing

20+ SKUs covering import and domestic applications



#### **Fuel Pressure Sensors**

Monitors flow to deliver precise fuel injection performance

130+ part numbers for import and domestic applications



#### **Camshaft Followers**

Direct-fit OE replacement ensures proper fit, form, and function

20+ SKUs with coverage through 2023



## Related Components

### MFI

The best new fuel injector can't perform as designed with worn O-rings, failing related components, or low fuel pressure.

Standard's complete Fuel Injection
Program provides technicians with
everything they need for a complete
fuel system service.



#### **Fuel Pressure Sensors**

Monitors flow to deliver designed fuel injection performance

130+ SKUs with coverage through 2024



### **Fuel Pressure Dampers**

Standard® reinforced washers help prevent dangerous fuel leaks and premature failure

55+ Dampers for import and domestic applications



### **Fuel Pressure Regulators**

Engineered for vehicle-specific fuel delivery and feature robust housing to reduce the chance of leakage

480+ SKUs with coverage through 2023



### **Fuel Injector Seal Kits**

New O-rings and seals will help ensure a proper install. Our O-Rings are made from high-quality materials to ensure performance and longevity

130+ O-Ring and Seal Kits specifically designed for MFI fuel injection systems



#### **Fuel Injector Connectors**

Standard® offers the right, quality connectors for fuel injectors and related fuel system components

Import and domestic coverage through 2024



## Standard<sup>®</sup> Solutions

Standard® only offers pristine, new GDI Injectors which deliver optimal performance and longevity.



While several aftermarket companies claim to have "reman" GDI injectors, Standard® only offers 100% new, never remanufactured GDI Injectors. This is because GDI injectors are sealed and cannot be disassembled for internal components to be replaced or repaired. GDI injectors that have been "remanufactured" have actually just been cleaned and will likely fail again.



## Standard® Quality

### **GDI FUEL INJECTORS**

GDI fuel injectors are subject to extreme temperature and pressure from within an engine's combustion chamber. Standard® GDI Fuel Injectors utilize special materials which are designed to perform in harsh conditions.

#### **Precision-wound and trimmed solenoid**

windings allow the computer to command efficient fuel delivery



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







Retaining clip
keeps the injector
in position while
protecting against
vibration



Standard® FJ1217

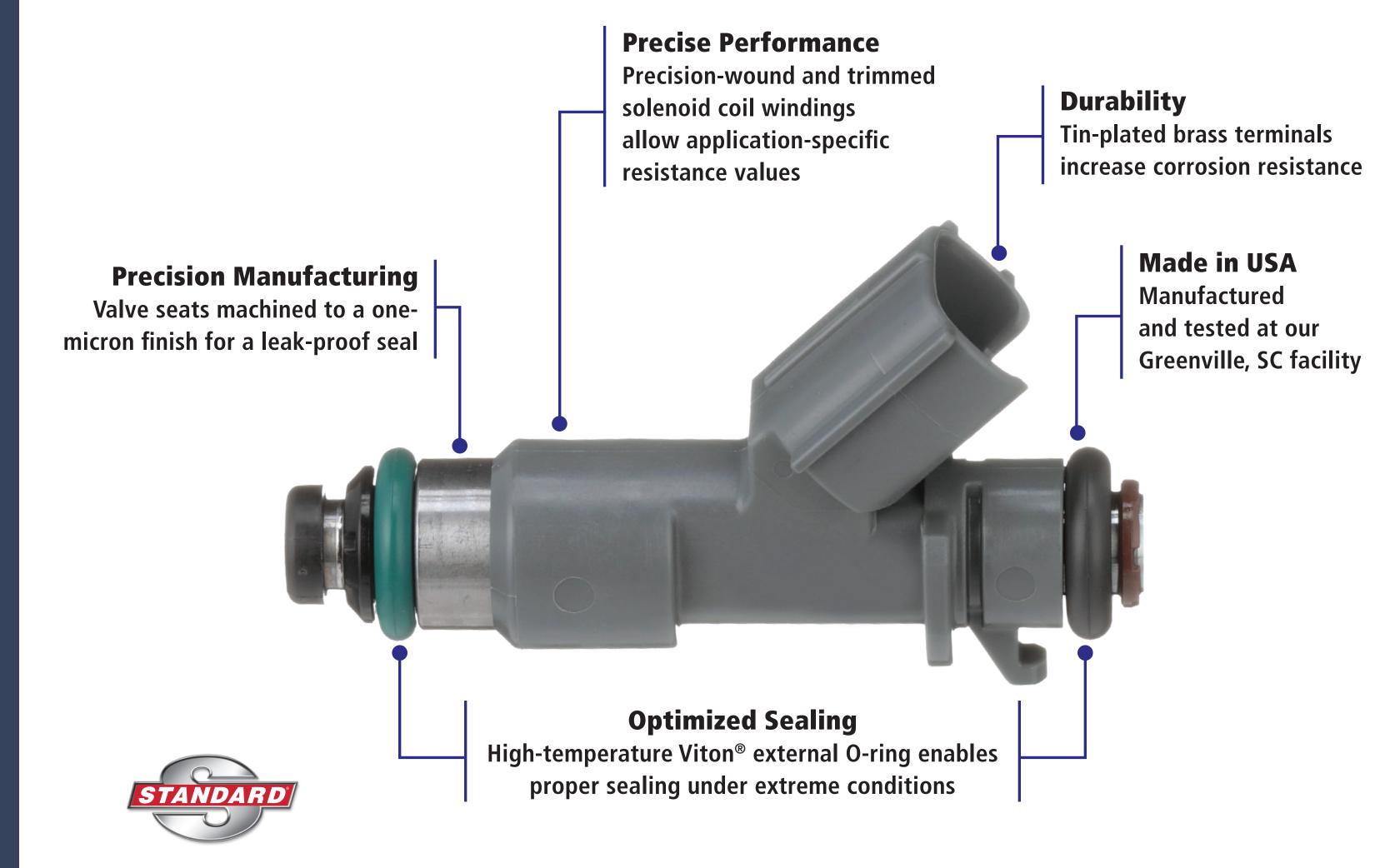
New GDI Fuel Injector Chevrolet / GMC Trucks, SUVs & Vans (2021-14)



## Standard® Quality

### MFI FUEL INJECTORS

Standard® Gasoline Fuel Injectors are always new, never remanufactured, and are precision-engineered to match injector flow, spray pattern and flow rate. New Standard® MFI Injectors help optimize both fuel economy and emissions.



**FJ982** 

Honda / Acura Cars & SUVs (2020-08)



## Testing and Validation

Standard® subjects its Fuel Injectors to more than 35 different tests and inspections. Life-cycle validation and 100% end-of-line testing is performed to make sure every Standard® Fuel Injector meets our precision quality, performance, and durability standards.



### Here are just a few of the elements and components that we test and inspect:

Body Color Endurance Spray Pattern

Body Style Flow Linearity Static Flow Rate

Coil Resistance Flow Matching Thermal Cycle Testing

Connector Shape Humidity Storage 3 Axis Vibration

Dynamic Flow Rate Shock Load and more!

# Standard® Pro Training Tech Tips

Standard® Pro Trainers have installed hundreds of fuel injectors and trained thousands of technicians. Here's what they say to look out for during a fuel injector install.



After replacing a fuel injector, regulator, or fuel pump, clear out the fuel trims before starting the engine and then observe them to ensure they are not attempting additional corrections



When replacing GDI injectors, always replace the one-time-use steel lines that are typically indicated with a yellow sticker and an image of a garbage can



# Standard® Professional Training

Award-Winning In-Person, Live Virtual, and Online Learning

Standard® Pro Training delivers accredited classes that educate technicians in the latest automotive repair technologies, and techs can earn CEU credits.

An extension of Standard® training, our extensive YouTube video library has over 650 technical and installation videos.



#### **Available Classes**

Diagnosing Electronic Fuel Pump Controls

**E85 & Flex Fuel Vehicles** 

**Fuel Trim Diagnostics** 

Gasoline Fuel Injection Fundamentals

**Lean Engine Diagnostics** 

**Rich Engine Diagnostics** 



#### **Available Classes**

**Advanced Drivability** 

**Analytical Approach to Diagnostic Problems** 

Ford EcoBoost

**Labscope Power User** 

**Nissan / Infiniti Diagnostics** 

**Toyota / Lexus Diagnostics** 

**Vehicle Emission Systems - Keeping It Clean** 



For information on replacing fuel injectors and related components, search "Injector" on the **StandardBrand** YouTube channel







