

# GAS FUEL INJECTION PROGRAM

1

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

2

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

3

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

**What's in your box?™  
Here's what's in ours.**



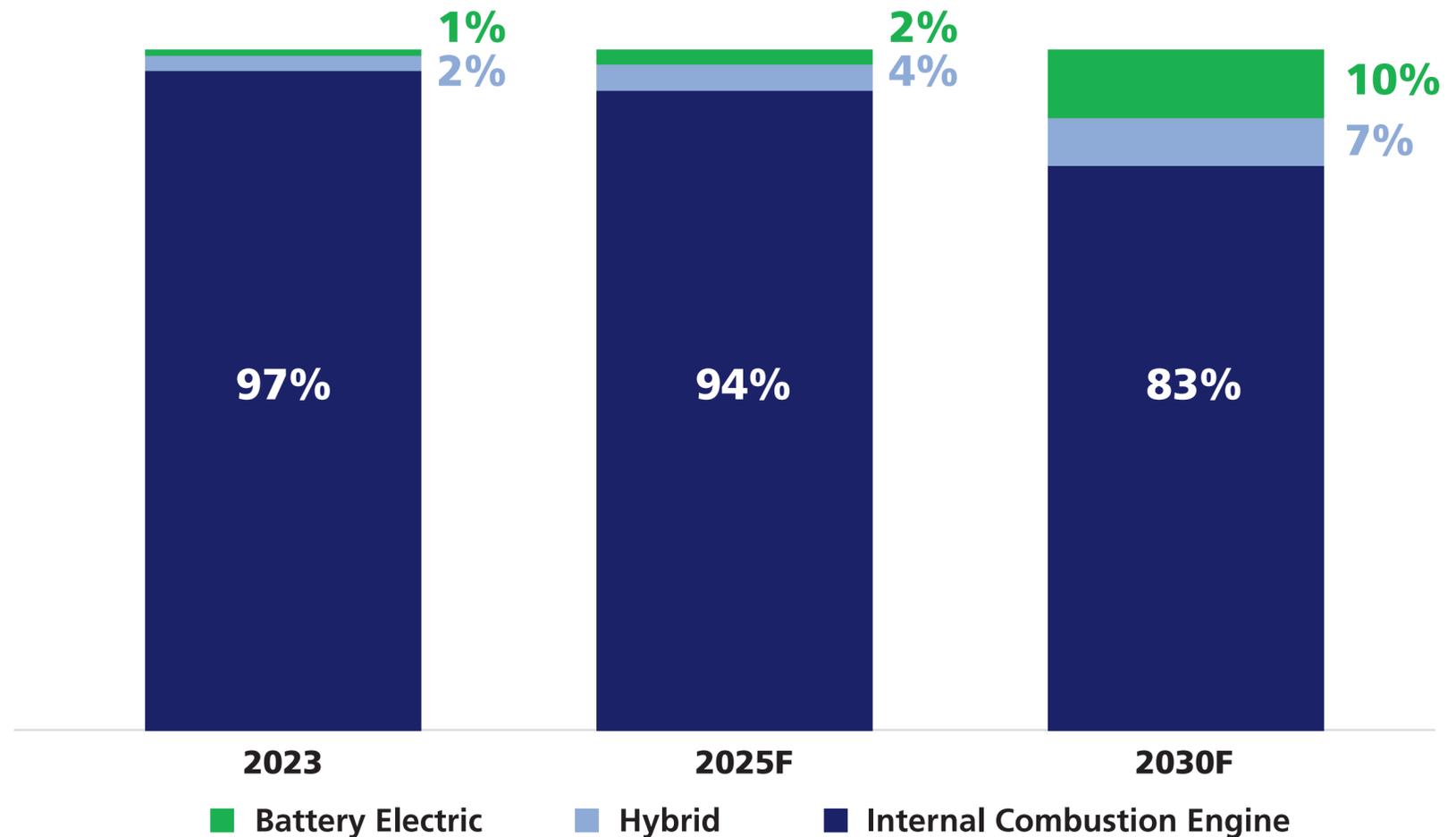
**ECHLIN. LOOKS RIGHT. FITS RIGHT. PERFORMS RIGHT.**

[NAPAEchlin.com](http://NAPAEchlin.com)

# 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.



\*2023 Joint EV Trends and Outlook Forecast, MEMA Aftermarket and Auto Care Association

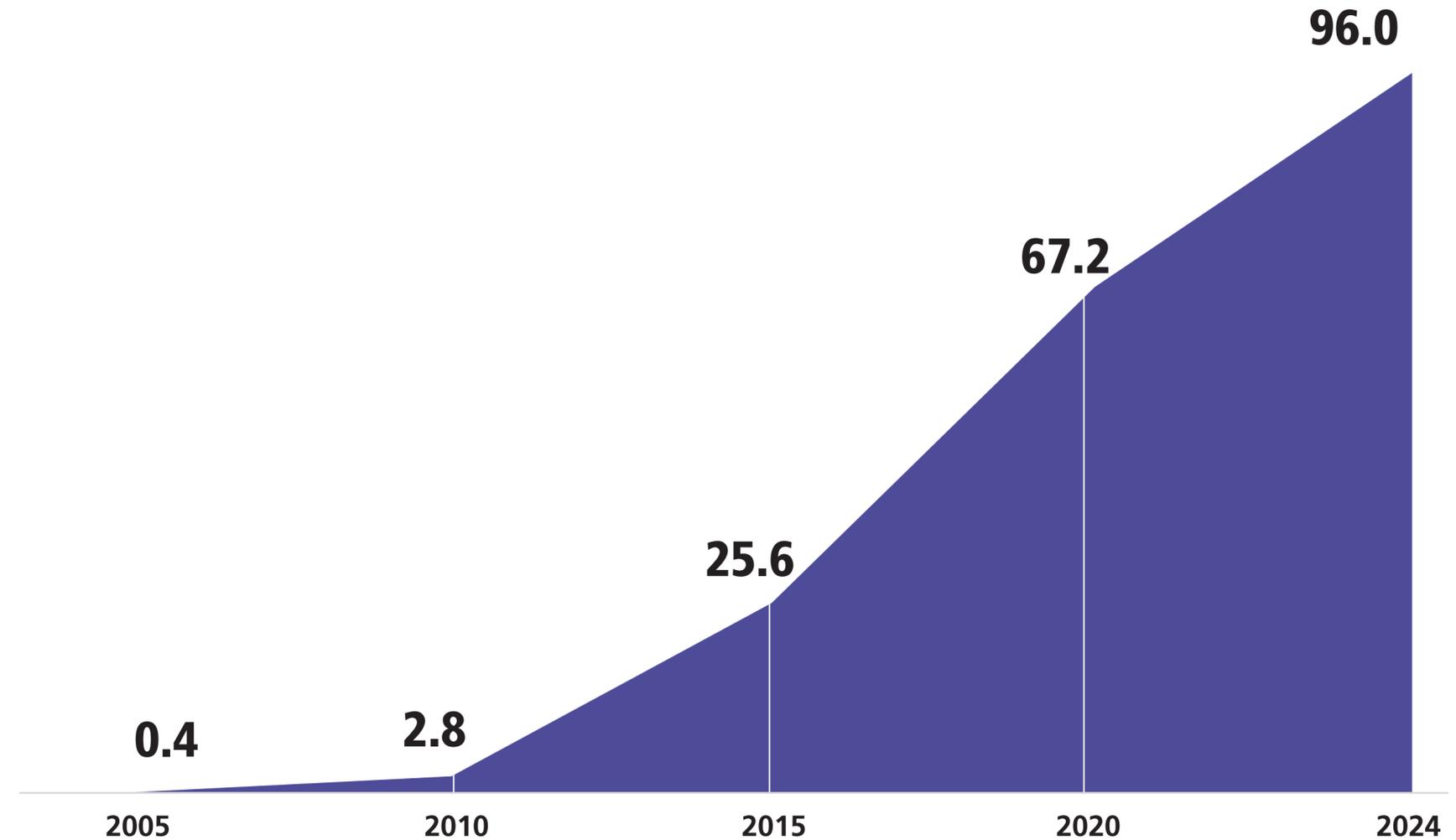
# Growing Market

Gasoline Direct Injection (GDI) 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.

Registered Vehicles with GDI\*  
(in millions)



\*Source: SMP Internal Data

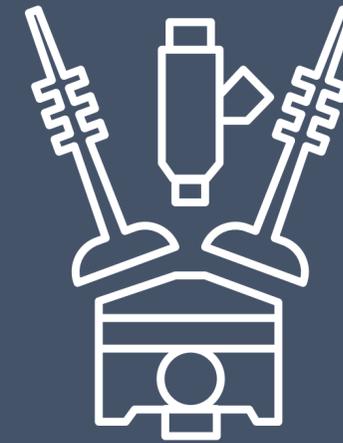
## Service Opportunities:

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 Echlin® is committed to introducing new Injectors for these vehicles.

For the most recent applications, check the catalog at [NAPAEchlin.com](http://NAPAEchlin.com).



**2-39571**

Ford Trucks & SUVs  
(2023-21) VIO: 310K



**2-39599**

Subaru Cars & SUVs  
(2023-20) VIO: 455K



**2-39596**

BMW Cars & SUVs  
(2022-18) VIO: 136K



**2-39605**

GM Cars & SUVs  
(2022) VIO: 437K



# What's New

## MFI INJECTORS

Echlin® is also continuing to develop and introduce new MFI injectors for late-model vehicles.

For the most recent applications, check the catalog at [NAPAEchlin.com](http://NAPAEchlin.com).



**2-39627**

Toyota Trucks & SUVs  
(2018-11) VIO: 322K



**2-39603**

Jeep / RAM Trucks  
(2023-22) VIO: 241K



**2-39613**

RAM Trucks  
(2019-18) VIO: 137K



**2-29627**

Honda Accord  
(2017, 2015-14) VIO: 53K



# 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. Echlin® is here to cover it all.

For the most recent applications, check the online catalog at [NAPAEchlin.com](http://NAPAEchlin.com).



### Fuel Pump Camshaft Follower

**2-34327**

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



### Fuel Pump Driver Module

**PDM140**

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



### Fuel Injector Retaining Bracket

**2-12452**

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



### Fuel Injector Seal Kit

**2-12459**

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



### Fuel Feed Line

**2-34566**

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



### Fuel Pressure Sensor

**2-34571**

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

# Product Spotlight

## ECHLIN® DIRECT INJECTION HIGH-PRESSURE FUEL PUMP KITS

Echlin'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.

2-34163K includes:



**GM Cars and SUVs**  
(2019-16) VIO: 1.6M

# Complete Program

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

Echlin'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 Echlin® 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 precision-engineered to match the failed OE injector it is replacing



## Throttle Body Injectors (TBI)

50+ TBI Injectors

Meticulous engineering and precision machining ensures every Echlin® 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**



**2-39124**

Audi / VW Cars & SUVs  
(2018-08)



**2-39213**

Hyundai / Kia Cars & SUVs  
(2017-12)



**2-39424**

Honda Trucks & SUVs  
(2020-16)



**2-39714**

Hyundai / Kia Cars & SUVs  
(2021-15)



**2-39260**

Mazda Cars & SUVs  
(2018-12)



**2-39284**

GM Trucks, SUVs & Vans  
(2021-14)



**2-39061**

GM Cars & SUVs  
(2011-08)



**2-39205**

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



**2-39360**

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



**2-39224**

GM Cars, Trucks & SUVs  
(2022-12)

**DOMESTIC  
APPLICATIONS**

# Top Movers - MFI Injectors

**IMPORT  
APPLICATIONS**



**2-38867**

Honda / Acura Cars & SUVs  
(2011-03)



**2-38723**

Toyota Trucks & SUVs  
(2004-99)



**2-39113**

Honda / Acura Cars & SUVs  
(2015-08)



**2-18034**

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



**2-18744**

Honda / Acura Cars  
(2002-97)



**2-39214**

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



**2-38763**

GM Trucks, SUVs & Vans  
(2007-99)



**2-39183**

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



**2-38857**

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



**2-38916**

Chrysler / Dodge  
Cars & SUVs  
(2011-04)

# Related Components

## GDI

GDI fuel systems are complex and feature more parts than a traditional MFI fuel system. Along with our broad coverage of GDI Injectors, Echlin® provides 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.

Echlin'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

Echlin® 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

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

Import and domestic coverage through 2024

# Echlin® Solutions

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

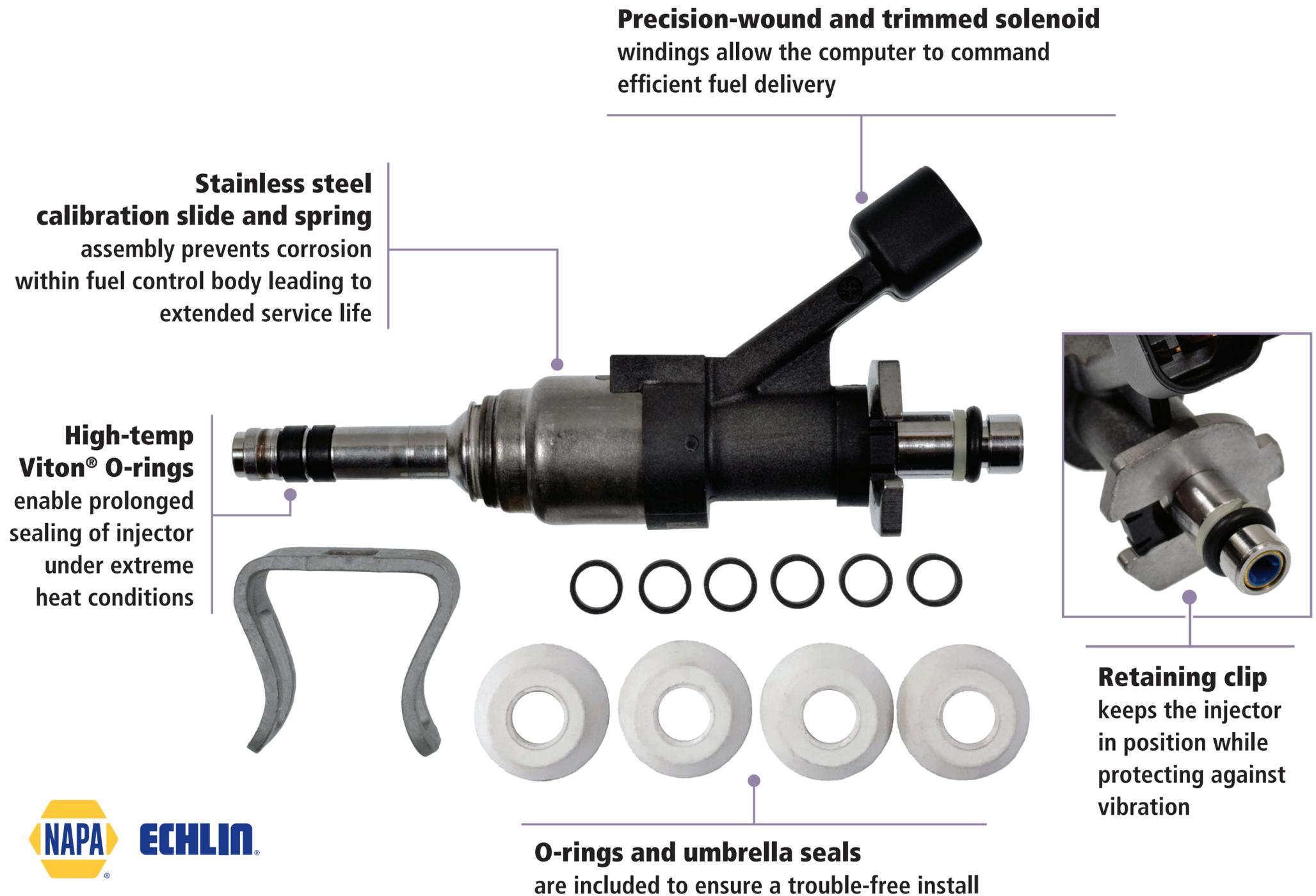


While several aftermarket companies claim to have “reman” GDI injectors, Echlin® only offers 100% new, never remanufactured GDI Injectors. This is because GDI injectors are sealed and cannot be disassembled for internal components to be replaced or repaired. GDI injectors that have been “remanufactured”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

# Echlin<sup>®</sup> Quality

## GDI FUEL INJECTORS

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

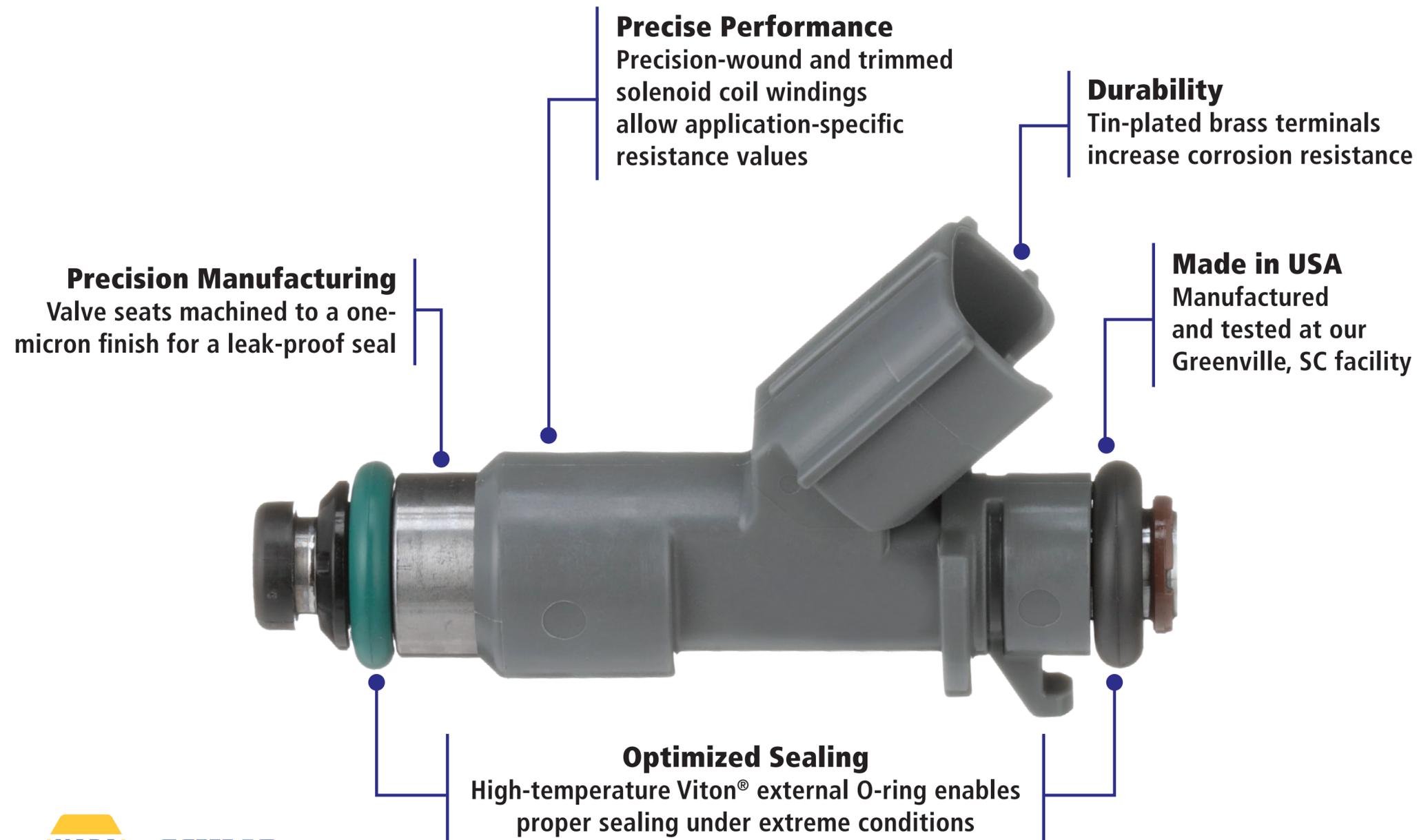


**2-39284**  
New GDI Fuel Injector  
Chevrolet / GMC Trucks, SUVs & Vans  
(2021-14)

# Echlin® Quality

## MFI FUEL INJECTORS

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



**2-39044**  
Honda / Acura Cars & SUVs  
(2020-08)

# Testing and Validation

Echlin® 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 Echlin® 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

Body Style

Coil Resistance

Connector Shape

Dynamic Flow Rate

Endurance

Flow Linearity

Flow Matching

Humidity Storage

Shock Load

Spray Pattern

Static Flow Rate

Thermal Cycle Testing

3 Axis Vibration

and more!

# Echlin® Pro Training Tech Tips

Echlin® 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**

# Echlin® Professional Training

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

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

An extension of Echlin® training, our extensive YouTube video library has over 550 technical and installation videos.



## Available Classes

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Diagnosing Electronic Fuel Pump Controls

E85 & Flex Fuel Vehicles

Fuel Trim Diagnostics

Gasoline Fuel Injection Fundamentals

Lean Engine Diagnostics

Rich Engine Diagnostics



## Available Classes

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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 GDI Injectors and components, search "GDI" on the **NAPA® Echlin®** YouTube channel

