

ELECTRONIC THROTTLE BODIES & RELATED PARTS

1

We are an expert manufacturer with more than 240 ETBs covering over 210M vehicles

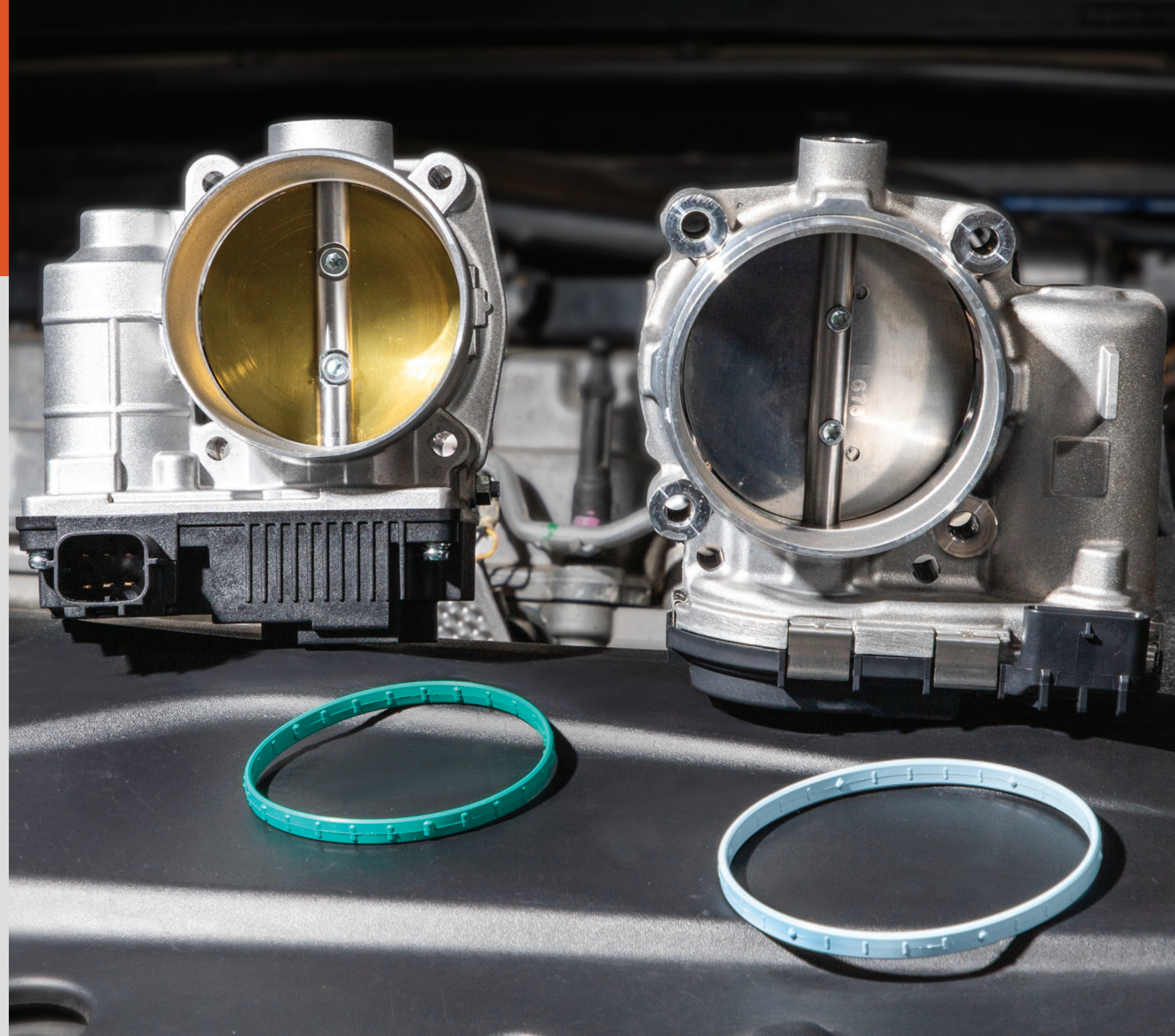
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Every Tech Expert® by NAPA® Echlin® Electronic Throttle Body is 100% new, never remanufactured and fully calibrated & tested

3

Popular Tech Expert® ETBs include new gaskets for a quicker installation

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



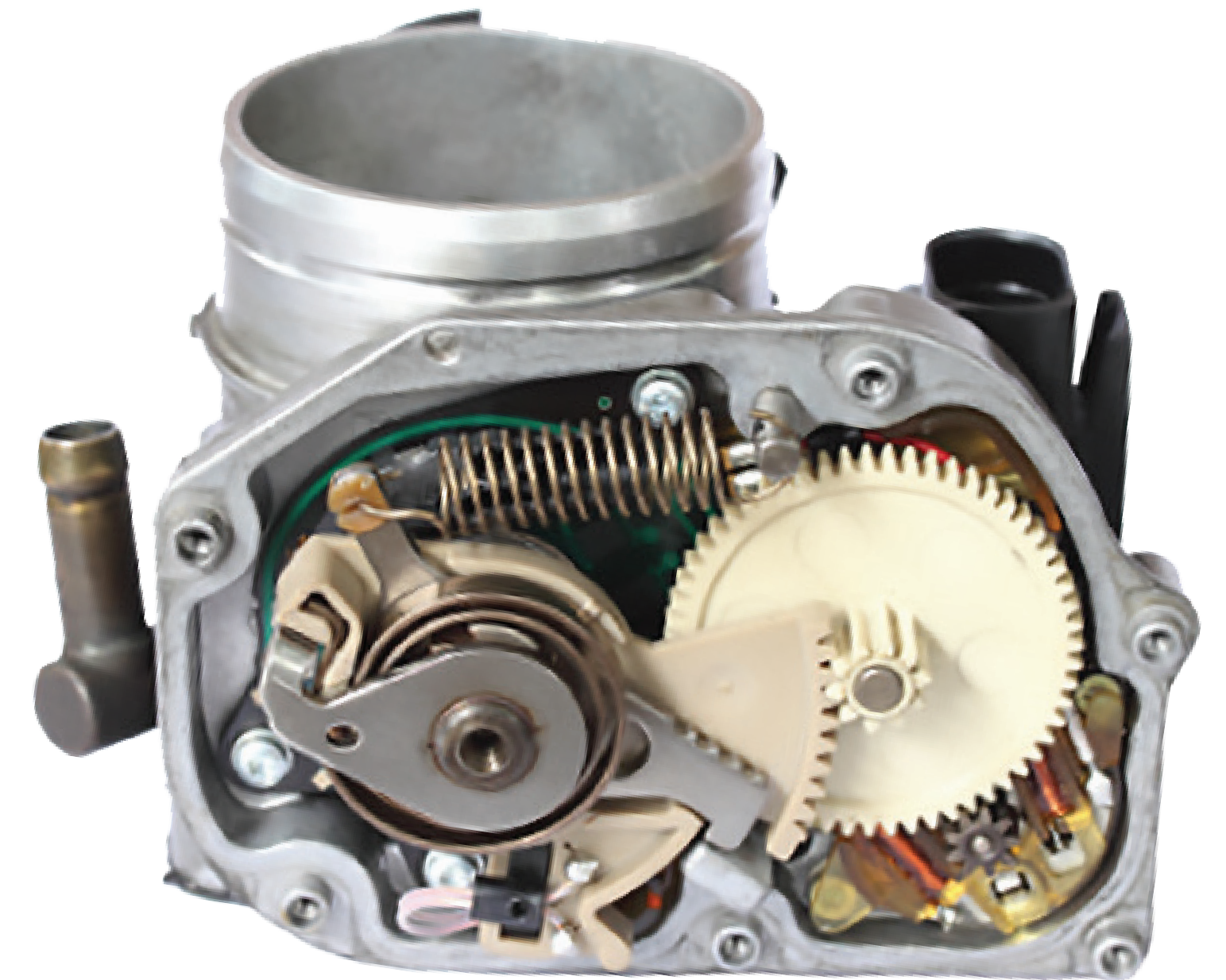
Growing Market

Electronic throttle bodies have replaced traditional cable-operated throttle bodies and are a key component of electronic control systems. ETBs are now standard components found on all new internal combustion engine-powered vehicles, including hybrids.

This category, which barely existed 20 years ago, is one of the fastest growing underhood segments in the industry.

Why ETBs Fail

- Electronic throttle bodies are largely comprised of wearable mechanical components
- The throttle plate is opened and closed by an electric motor using a series of gears
- There is no oil or lubrication system for the gear train of an ETB
- Over time the gear teeth can wear, causing ETB failure
- Additionally, ETBs encounter harsh underhood conditions and contamination, which can cause them to fail



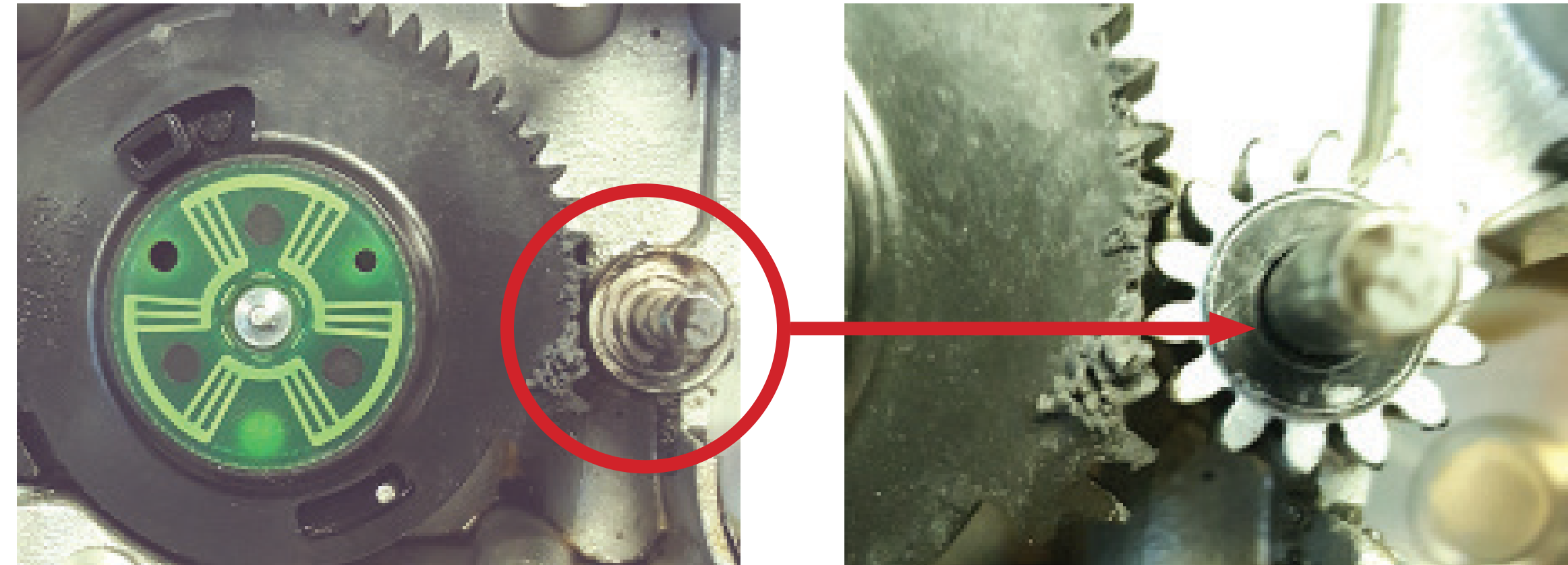
Opportunities

The Jeep / Chrysler 2.0L and 2.4L often see ETBs fail before 100,000 miles. The main cause is worn or broken gear teeth inside the ETB.

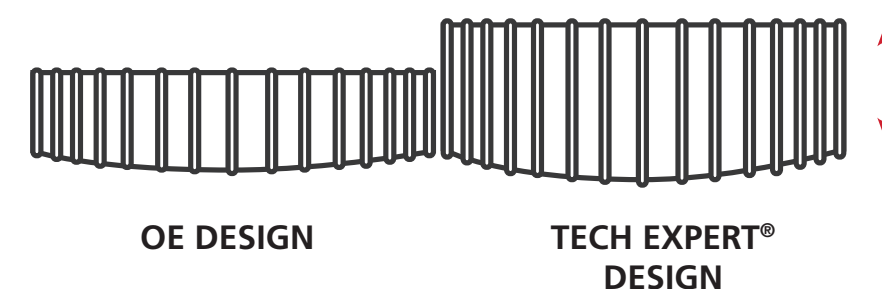
Tech Expert's ETB172 ETB features improved geometry and higher-strength materials for a better-performing and longer-lasting gear train.

OE PROBLEM

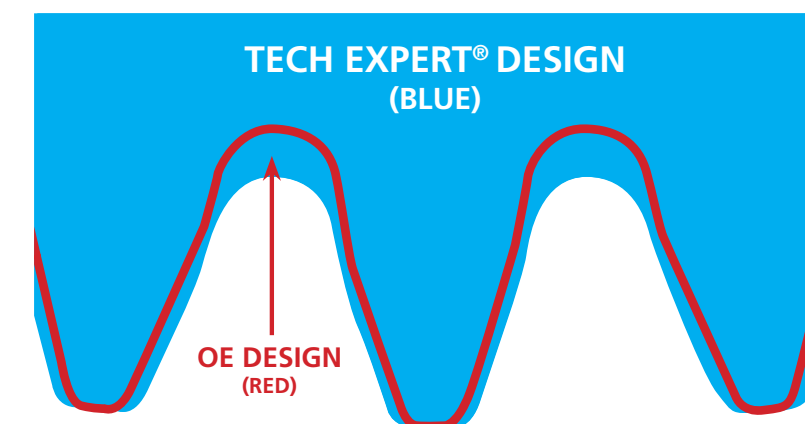
The gear teeth prematurely wear because of poor geometry and poor-quality materials



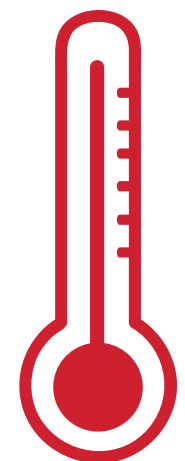
TECH EXPERT® SOLUTIONS:



Increased the face width of the gear to reduce stress on the teeth



Improved the geometry of the gear teeth to improve strength



Upgraded the integrity of the gear by using a higher-strength, heat-resistant material

Impact on Engine Systems



Most vehicles' Powertrain Control Modules will adapt and operate differently as throttle components wear and/or collect carbon – After replacing a throttle body, the memory needs to be reset so the module doesn't look for the previously learned values



Electronic Throttle Control is utilized for torque control from the powertrain – An error in the throttle will affect the engine's performance, and other faults, such as a faulty wheel speed sensor, will affect the throttle control system



An ETB has multiple throttle position sensors. Loss of signal from any one of them can put the vehicle into "limp in" mode so as to avoid a false acceleration event

What's New

Electronic throttle bodies are one of the fastest growing categories in the industry. Echlin® is committed to regularly introducing new Tech Expert® numbers in this category for import and domestic vehicles.

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



ETB797

Jeep / RAM 3.6L
(2024-18) VIO: 1.1M



ETB812

Lexus / Toyota 2.5L
(2023-18) VIO: 2.4M



ETB830

General Motors 2.0L / 3.6L
(2023-13) VIO: 1.9M



ETB829

Hyundai / Kia 2.0L
(2016-11) VIO: 1M



Top Movers: Electronic Throttle Bodies

IMPORT APPLICATIONS



ETB501

Nissan / Infiniti Cars & SUVs
(2009-02)



ETB518

Toyota / Scion Cars & SUVs
(2007-03)



ETB529

Toyota / Scion Cars & SUVs
(2019-09)



ETB500

Nissan Cars & SUVs
(2013-07)



ETB504

Nissan Cars
(2006-00)



ETB172

Chrysler / Dodge / Jeep
Cars & SUVs
(2018-07)



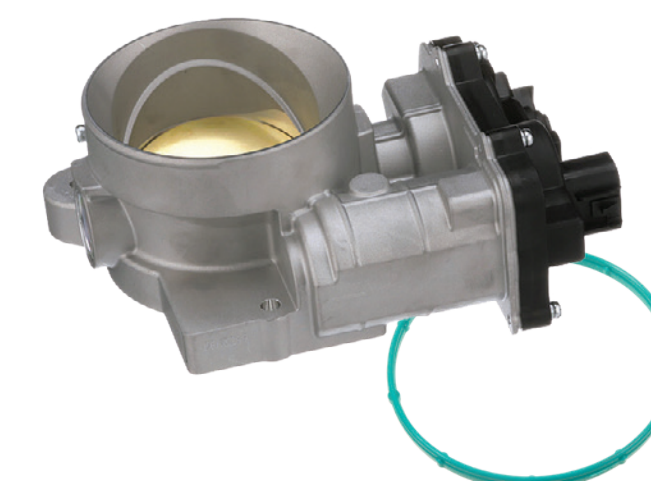
ETB119

GM Cars, Trucks, SUVs & Vans
(2017-09)



ETB145

Ford / Lincoln / Mercury
Cars, SUVs & Vans
(2022-09)



ETB106

GM Trucks, SUVs & Vans
(2009-05)



ETB146

Ford / Lincoln
Cars, Trucks, SUVs & Vans
(2020-11)

Related Parts

In addition to the highest-quality replacement Electronic Throttle Bodies, Echlin® offers a full line of key components necessary to keep the electronic throttle control system operating as designed.



Throttle Position Sensors

Monitors the throttle plate angle and sends information to the vehicle's ECU

Echlin® Throttle Position Sensors maintain specific installed outputs to match the original

More than 280 TPSs available with coverage through model year 2021



Intake Manifold Actuators

Controls the airflow within the intake manifold

Tech Expert® Variable Intake Manifold Actuators are designed with premium components to prevent intake linkage failure and deliver long service life

Coverage through model year 2023 for import and domestic vehicles

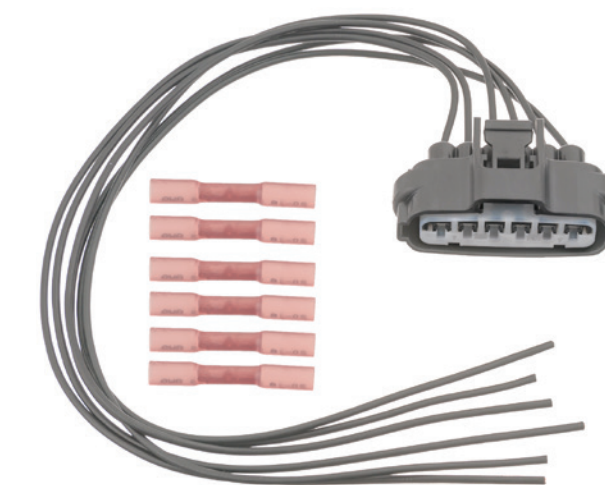


Accelerator Pedal Sensors

Indicates the position of the throttle pedal and sends information to the vehicle's ECU

Echlin® and Tech Expert® Accelerator Pedal Sensor assemblies are 100% tested to ensure the most accurate output versus pedal position

Nearly 400 APSs available with coverage through model year 2023



ETB Connectors

High-quality direct replacement that eliminates the need for a harness, replacing only the damaged connector for a cost-effective repair solution

All Echlin® Electrical Connectors are 100% tested for precise mechanical and electric performance

Coverage through model year 2024 for import and domestic vehicles

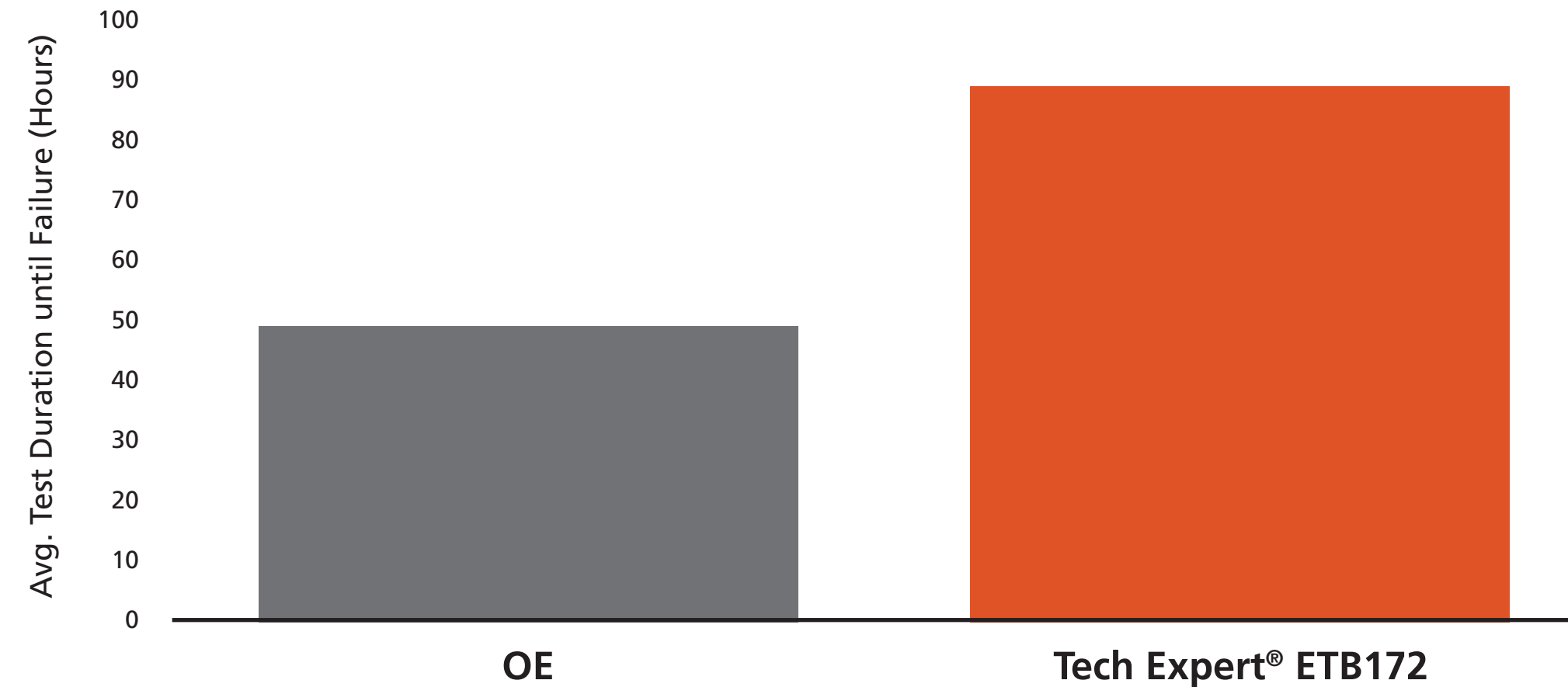
Gear Durability Testing & Results

Echlin® engineered design improvements for our premium Tech Expert® ETB172 replacement ETB for failure-prone Jeep / Chrysler applications, outperforming the original for durability and service life.

Echlin® engineers developed a gear durability test that simulates the loading that leads to failures on OE units. The throttle plate is continuously rotated ten degrees every second while the throttle plate is in near-closed position until the ETB is unable to open or close due to a mechanical failure.

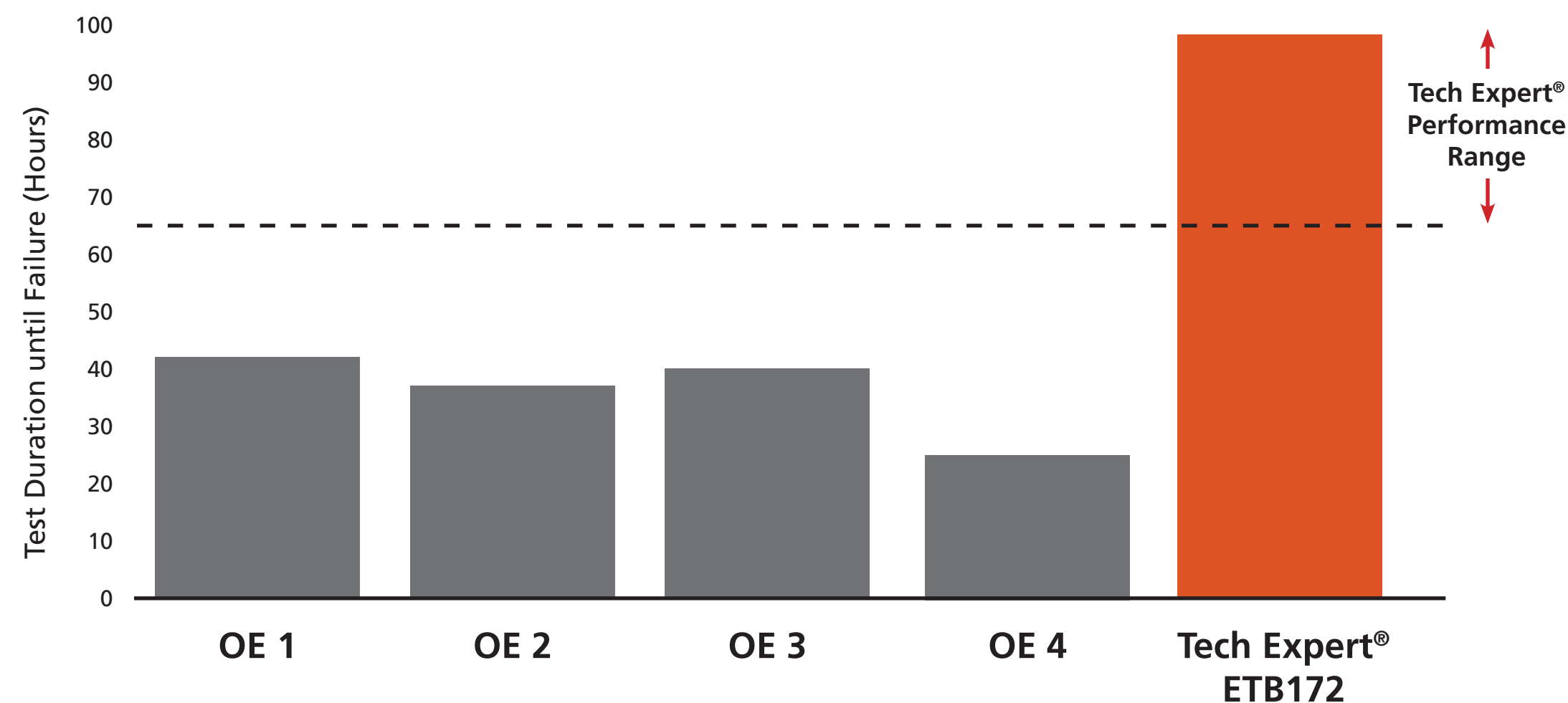
Tech Expert® outperforms the original

Gear Durability Testing OE vs. Tech Expert®



Tech Expert® performed
80%
better
than the OE

Gear Durability Testing OE to Tech Expert® Comparison



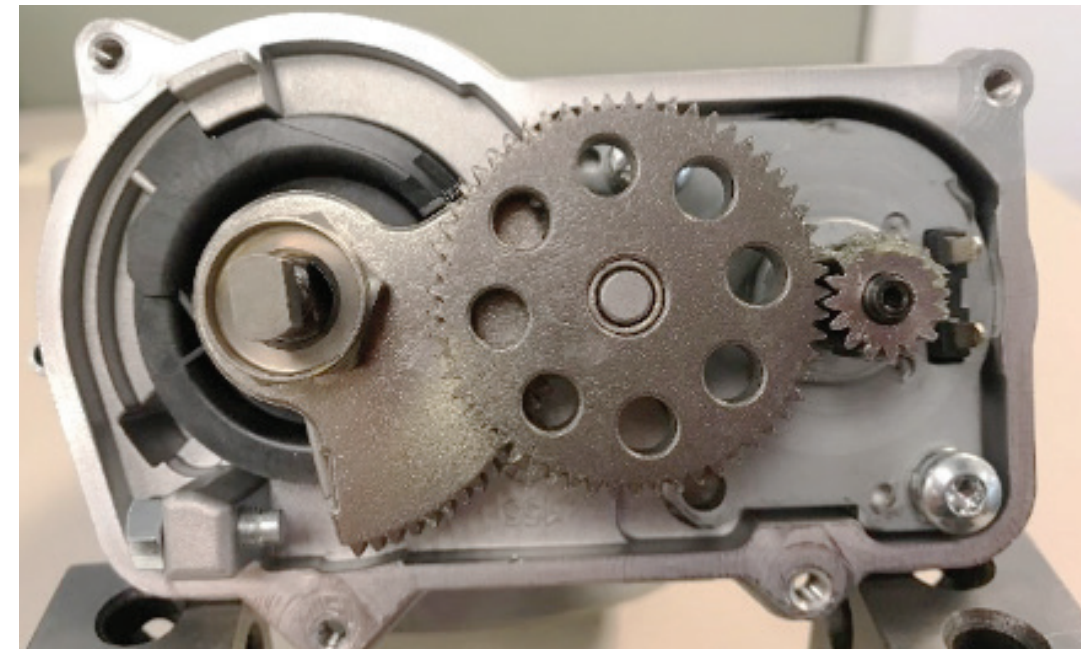
4 out of 5
OE parts failed
to measure up to the
Tech Expert® design

Source: SMP Testing Lab, 2020

Echlin® Engineering

A Closer Look

Premium ETBs start with premium components and innovative design. Here's how Echlin® goes the extra mile with our popular Tech Expert® ETB103 Electronic Throttle Body for late-model GM SUVs and trucks.



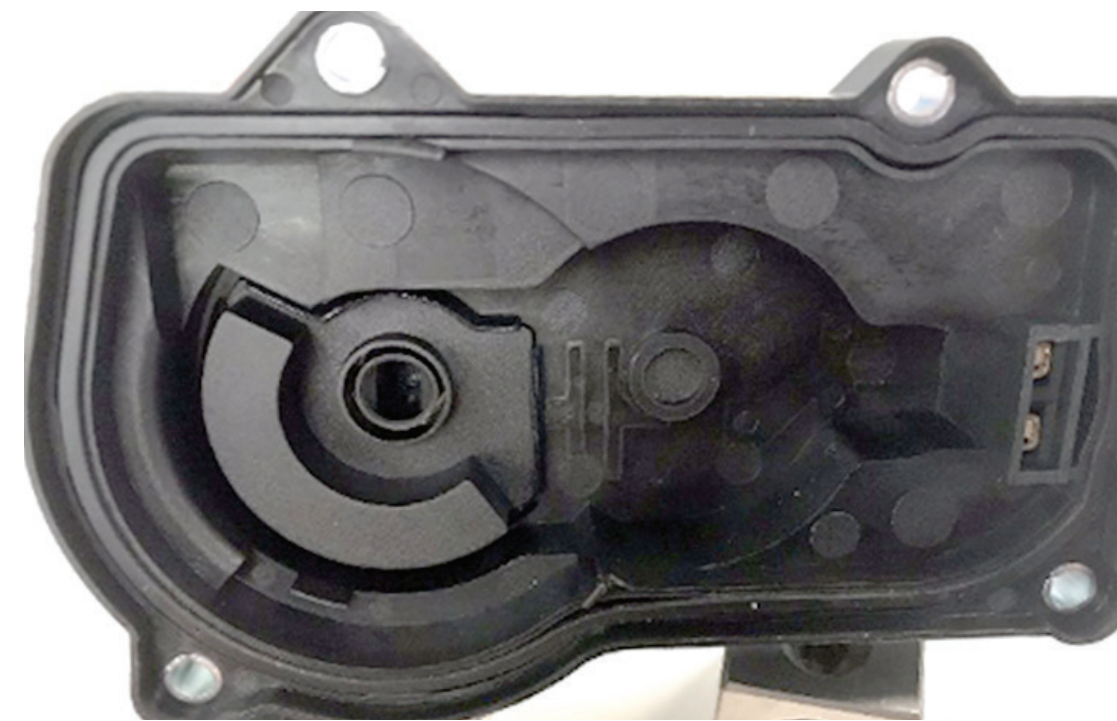
Stainless Steel Gears

Tech Expert® gearset is made of stainless steel and conforms to the highest standards of precision for a better-performing ETB.



Totally Enclosed Contact Brushes

Our contact brushes are totally enclosed and separate from the gearset and other moving parts. Motor contacts are plated to minimize contact resistance and resist corrosion. Screw holes include steel inserts to limit compression and prevent plastic cracking.



Sealed Construction

Elastomeric seal protects sensor from harsh underhood conditions to prevent contamination, improving reliability.

Source: SMP Testing Lab, 2020

Testing and Validation

Our ETBs are the result of superior design and the testing proves it.

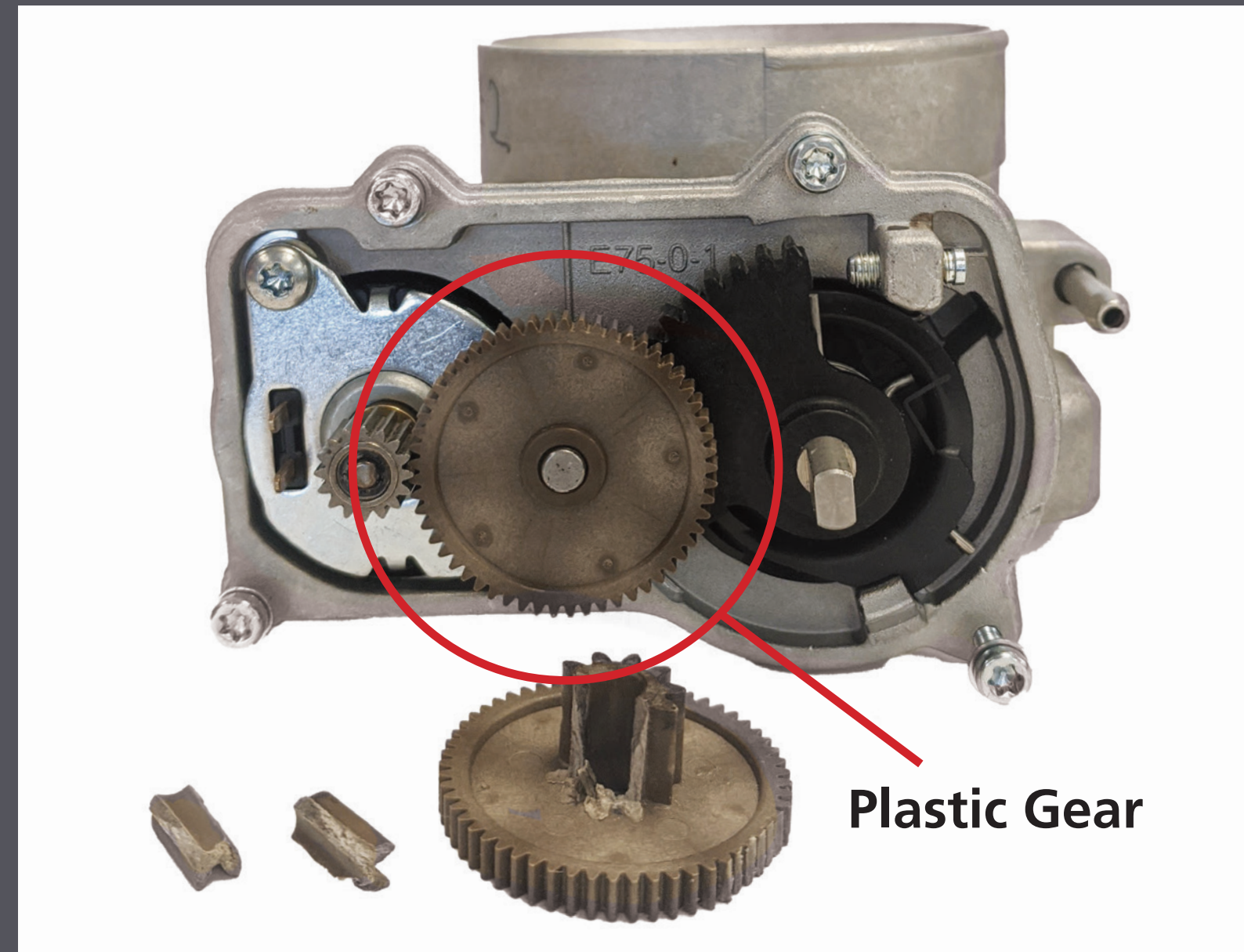
Echlin's superior quality stands up to the most severe underhood conditions and strenuous demands of today's engines – the competition did not.

We design and validate our end-of-line testing equipment to make certain every ETB that leaves our facility performs up to our critical standards.

Visit [NAPAEchlin.com](https://www.napaechlin.com) for detailed test results.

COMPETITION

FAILED



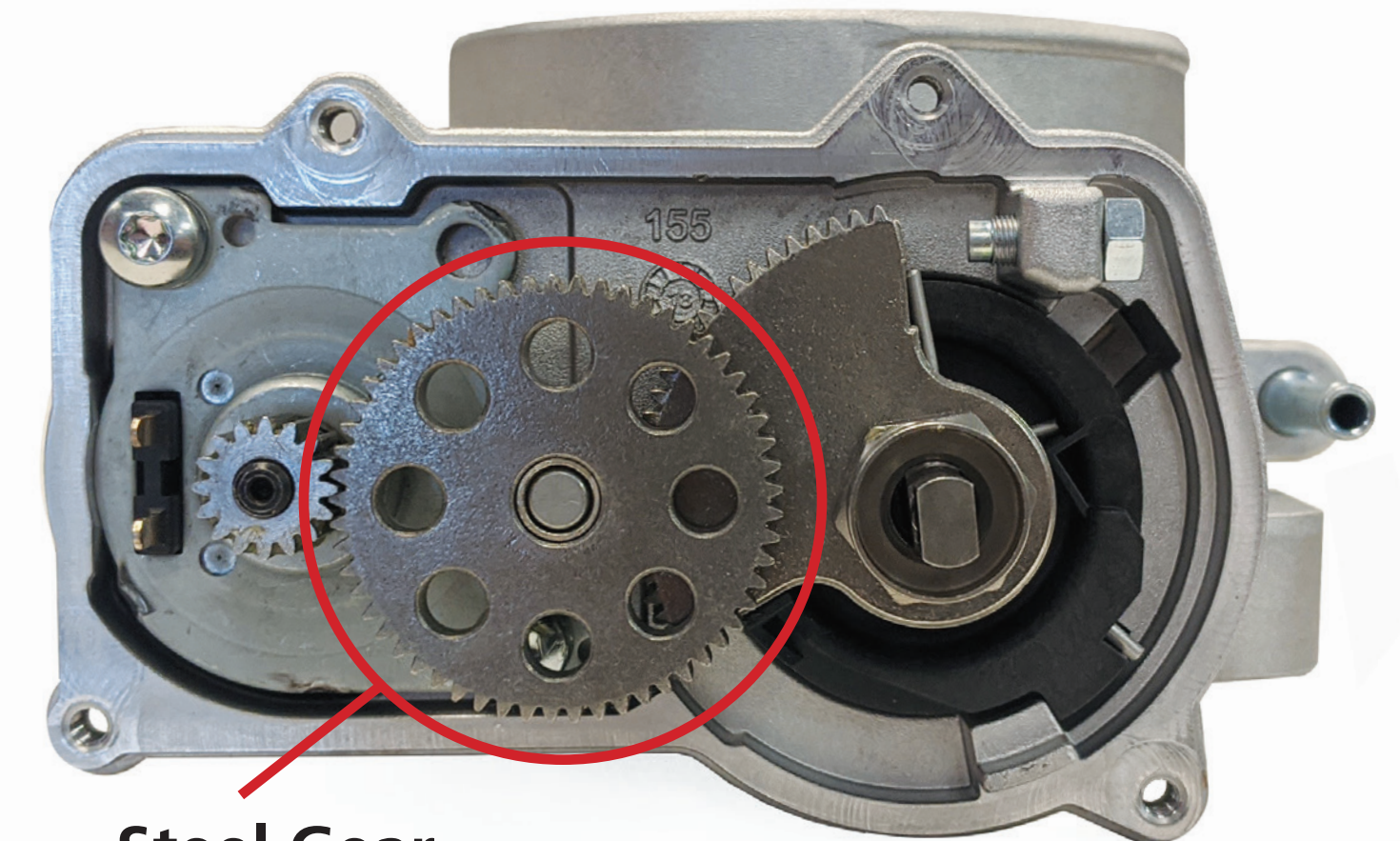
After only 10 days of testing, the competitor's ETB failed with a cracked compound gear

Inherent design flaws rendered the competitor's unit unusable

TECH EXPERT

ETB103

PASSED



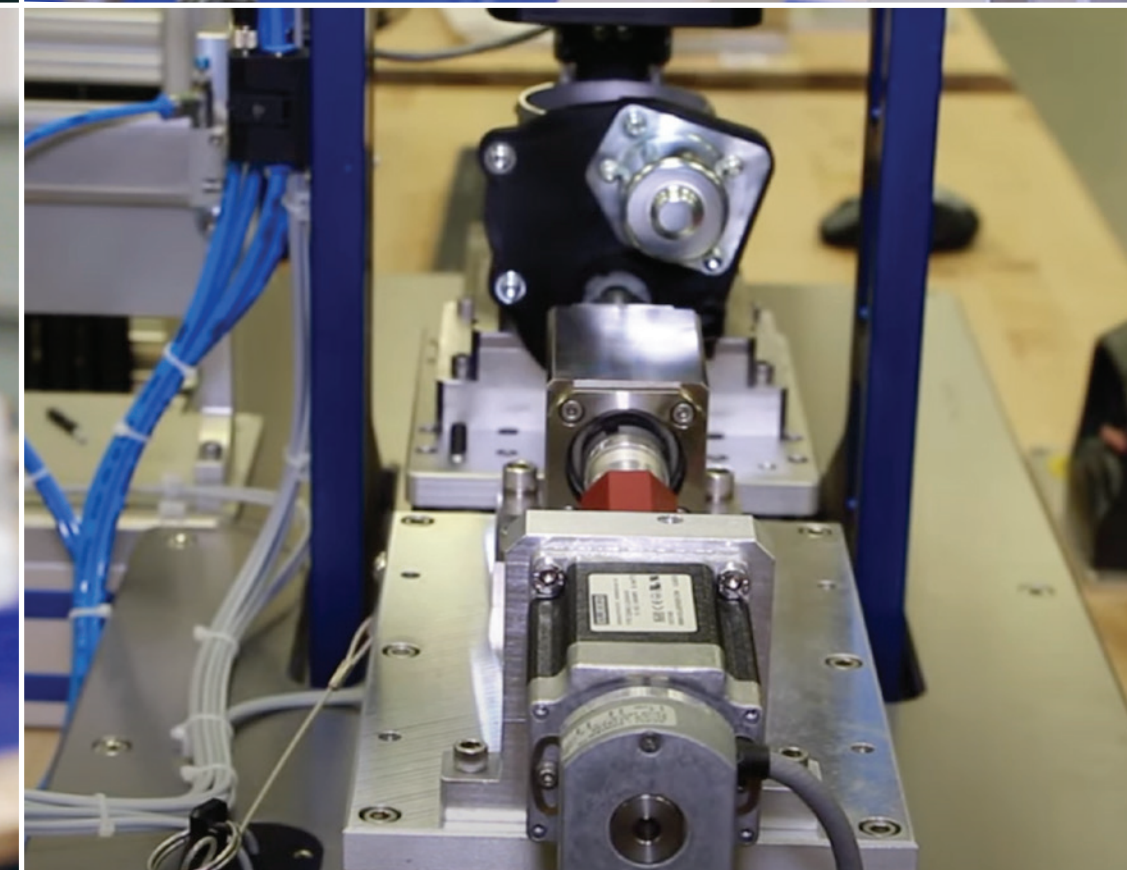
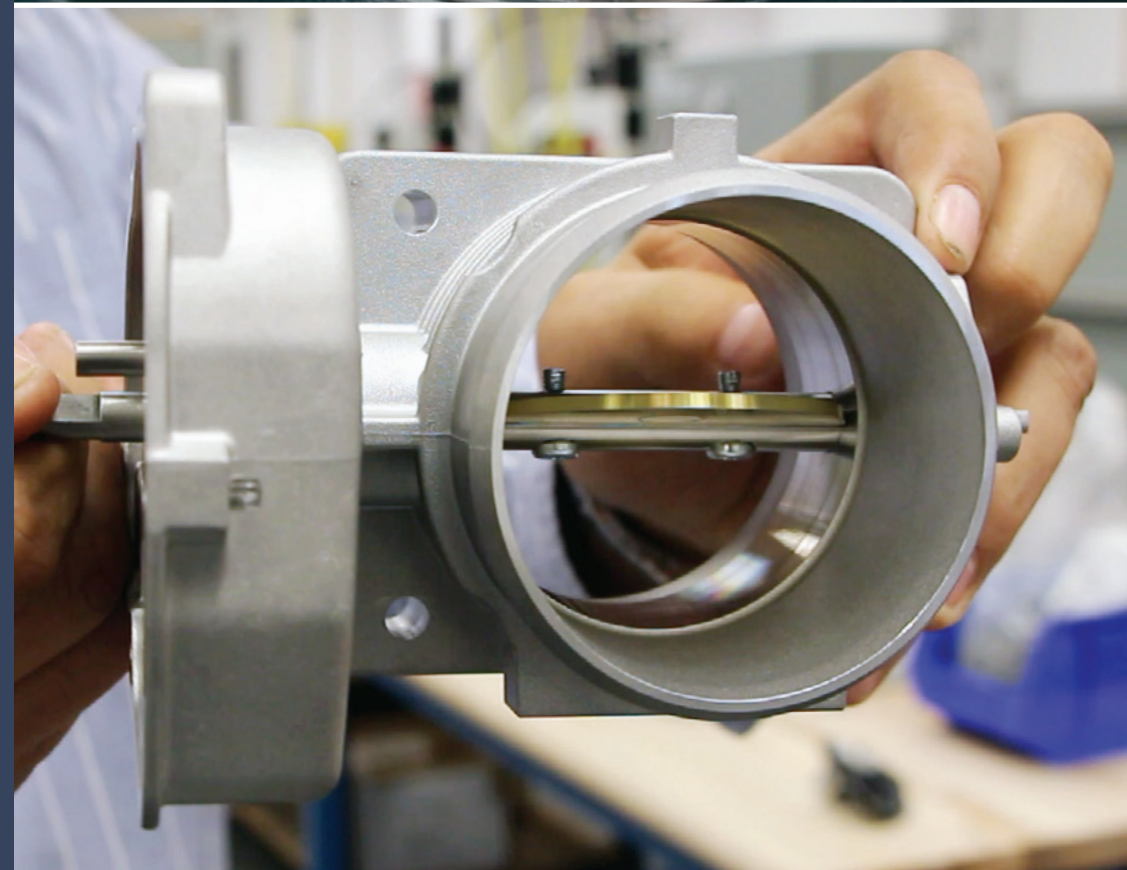
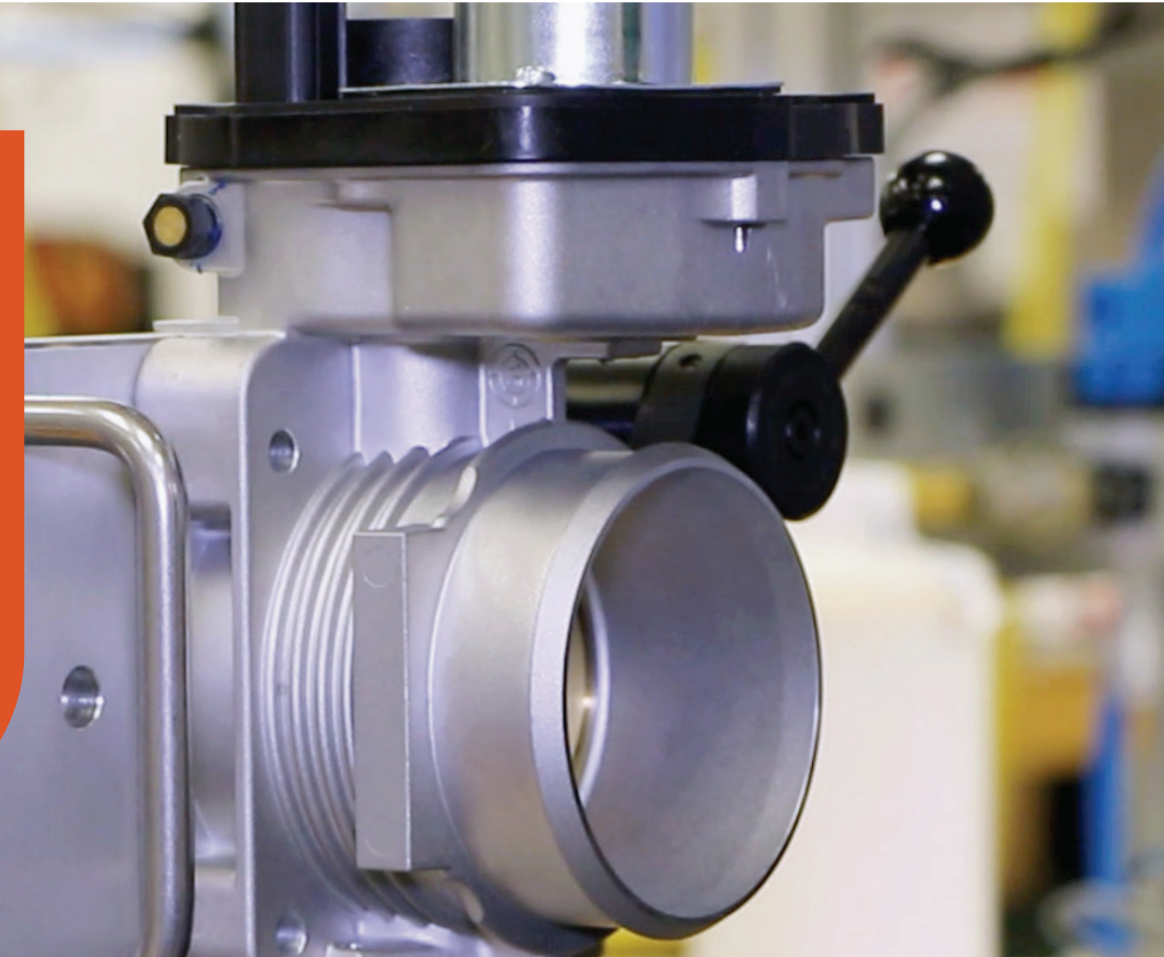
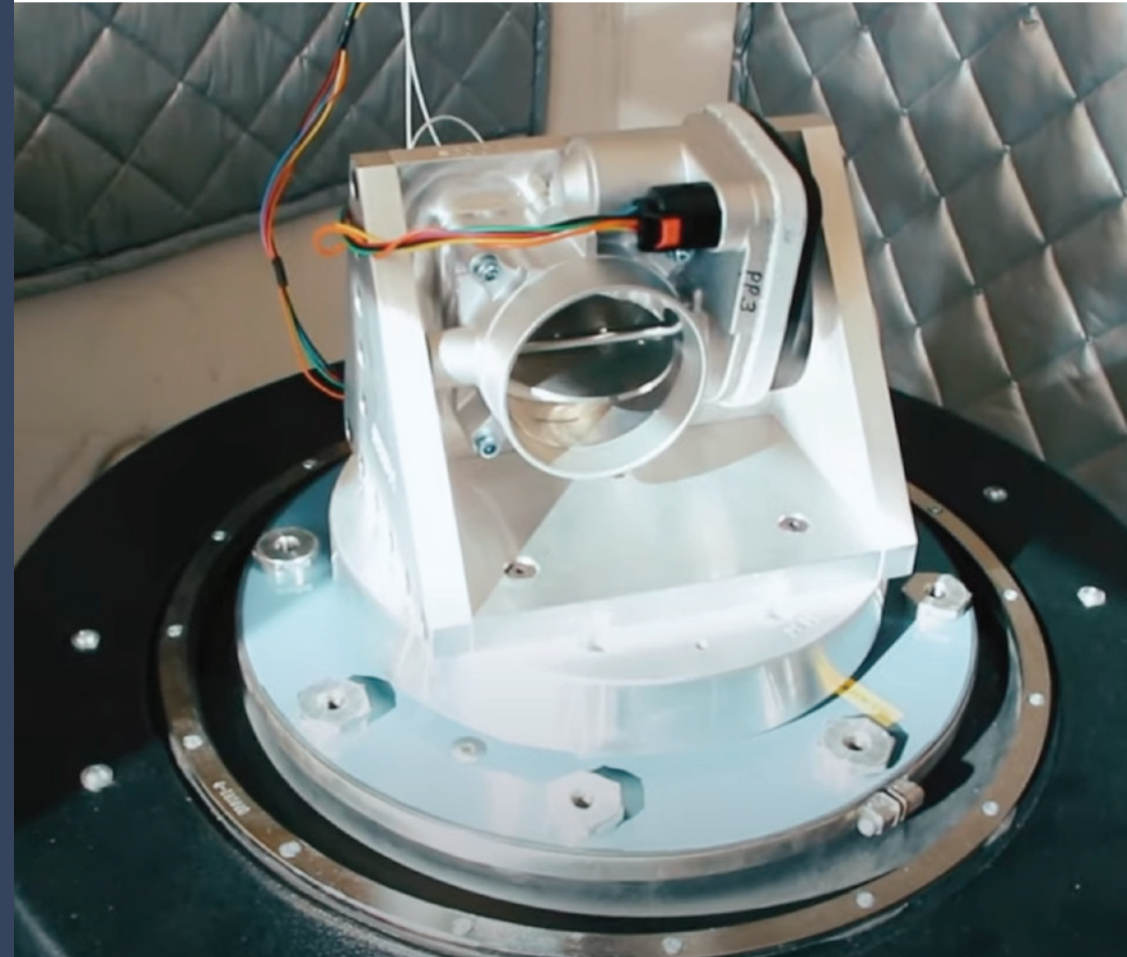
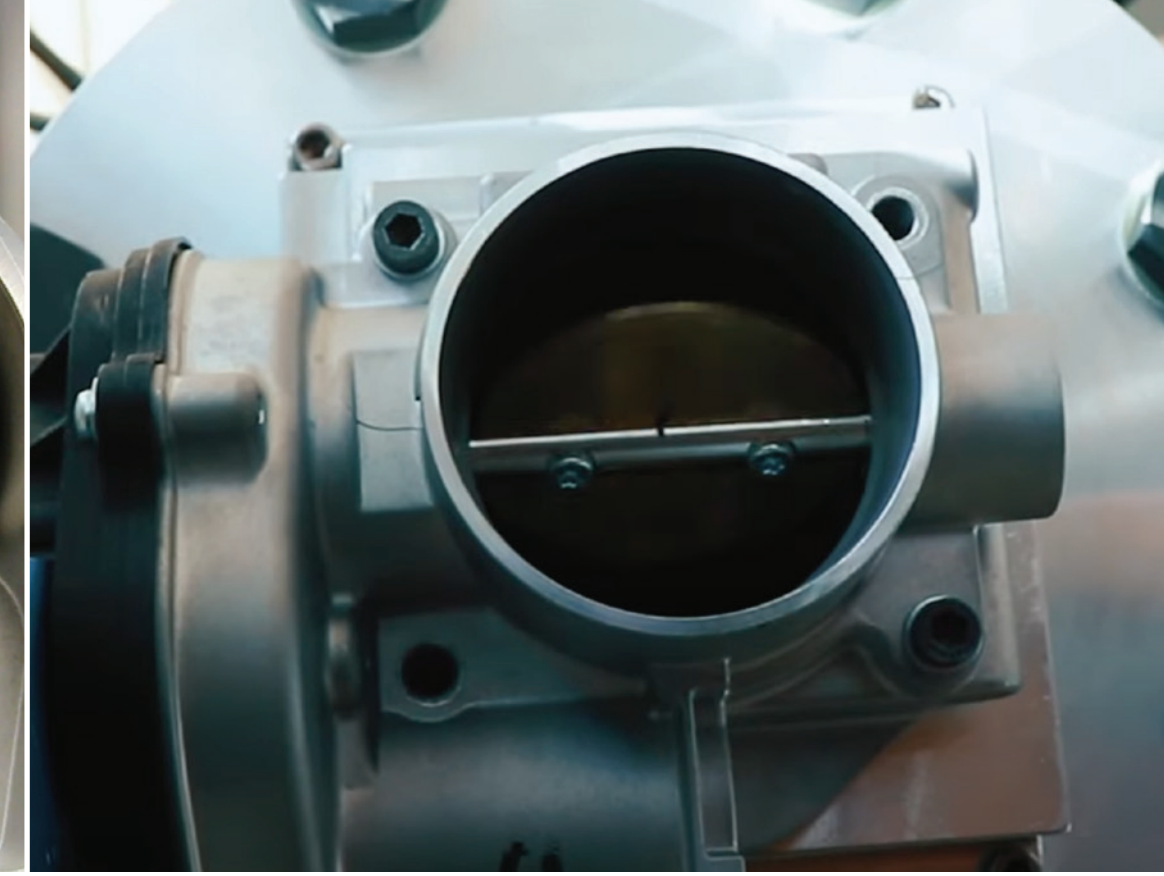
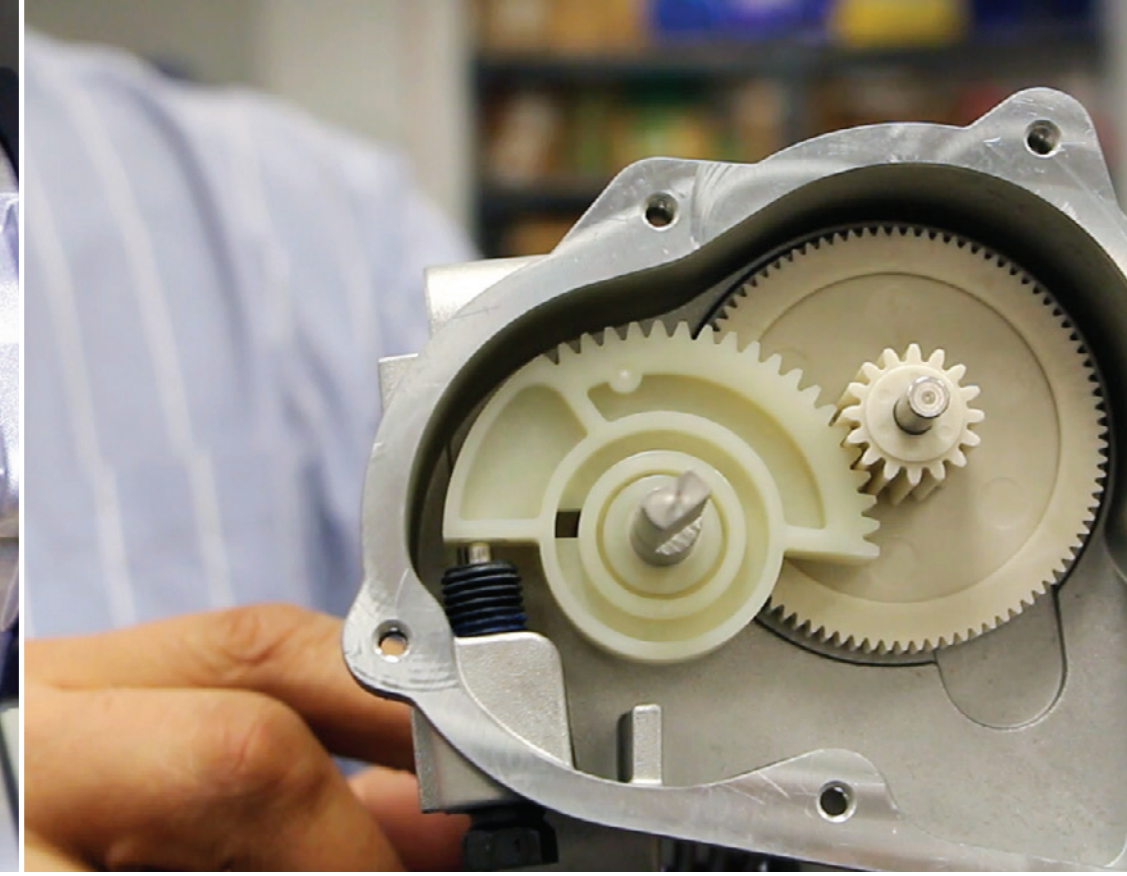
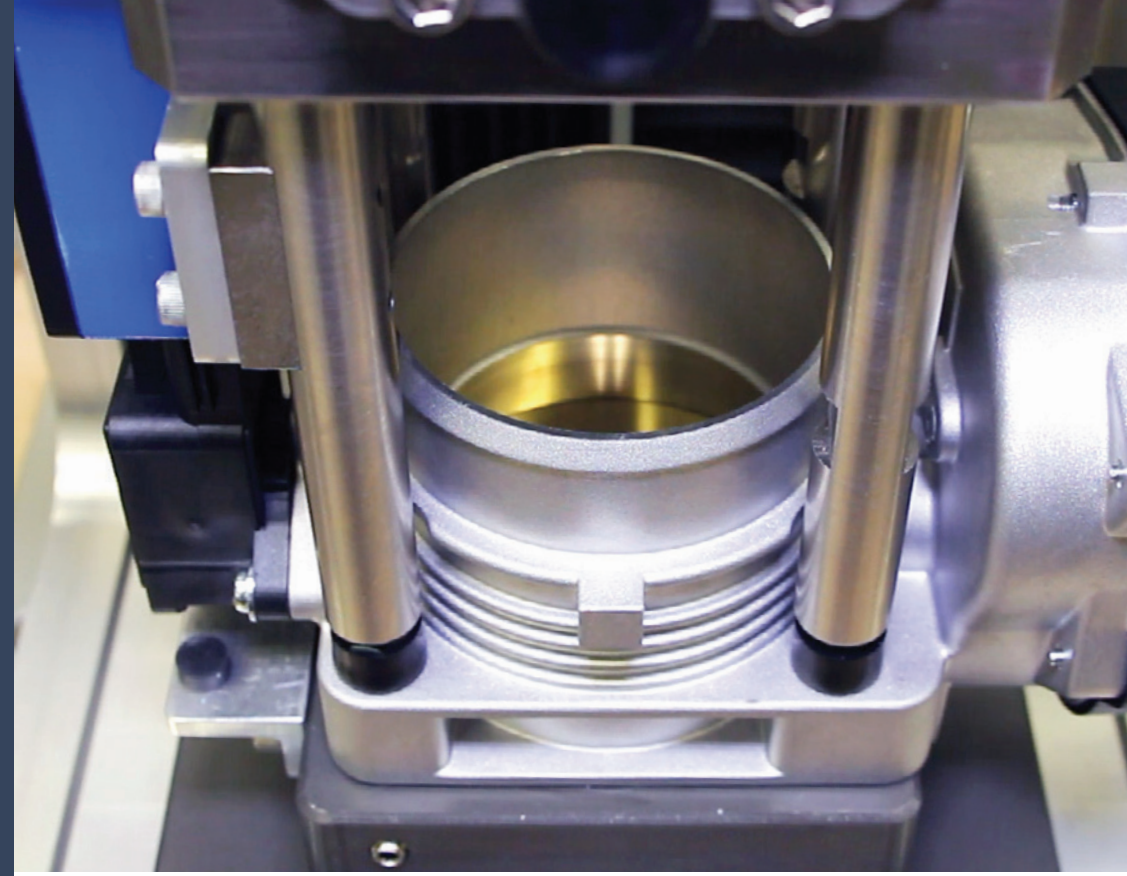
Even after 45 days of endurance testing, our ETB was intact and fully operational

Tech Expert® delivers a premium-quality ETB that performs under the toughest conditions

Source: SMP Testing Lab, 2020

Expert Manufacturing

As an expert Electronic Throttle Body manufacturer, we maintain complete quality control throughout the entire manufacturing process. We assemble and calibrate the components and validate output voltages to ensure they match OE for proper fit and precise performance. Tech Expert® ETBs are application-specific and precision engineered for the units they are replacing.



100% NEW
(Not Remanufactured)
Electronic Throttle Bodies

Echlin® Quality

To ensure quality and reliability, every Tech Expert® ETB is 100% new, never remanufactured. Because of this commitment to delivering premium new units, technicians won't encounter comebacks due to worn items in a partial rebuild.



ETB172
Chrysler / Pentastar
2.0L & 2.4L
(2018-07)

Made in North America:
Echlin®-manufactured ETBs are built in our own IATF-certified North American facility

Accuracy: Magnet is molded in a high-strength polymer for accurate performance in all conditions

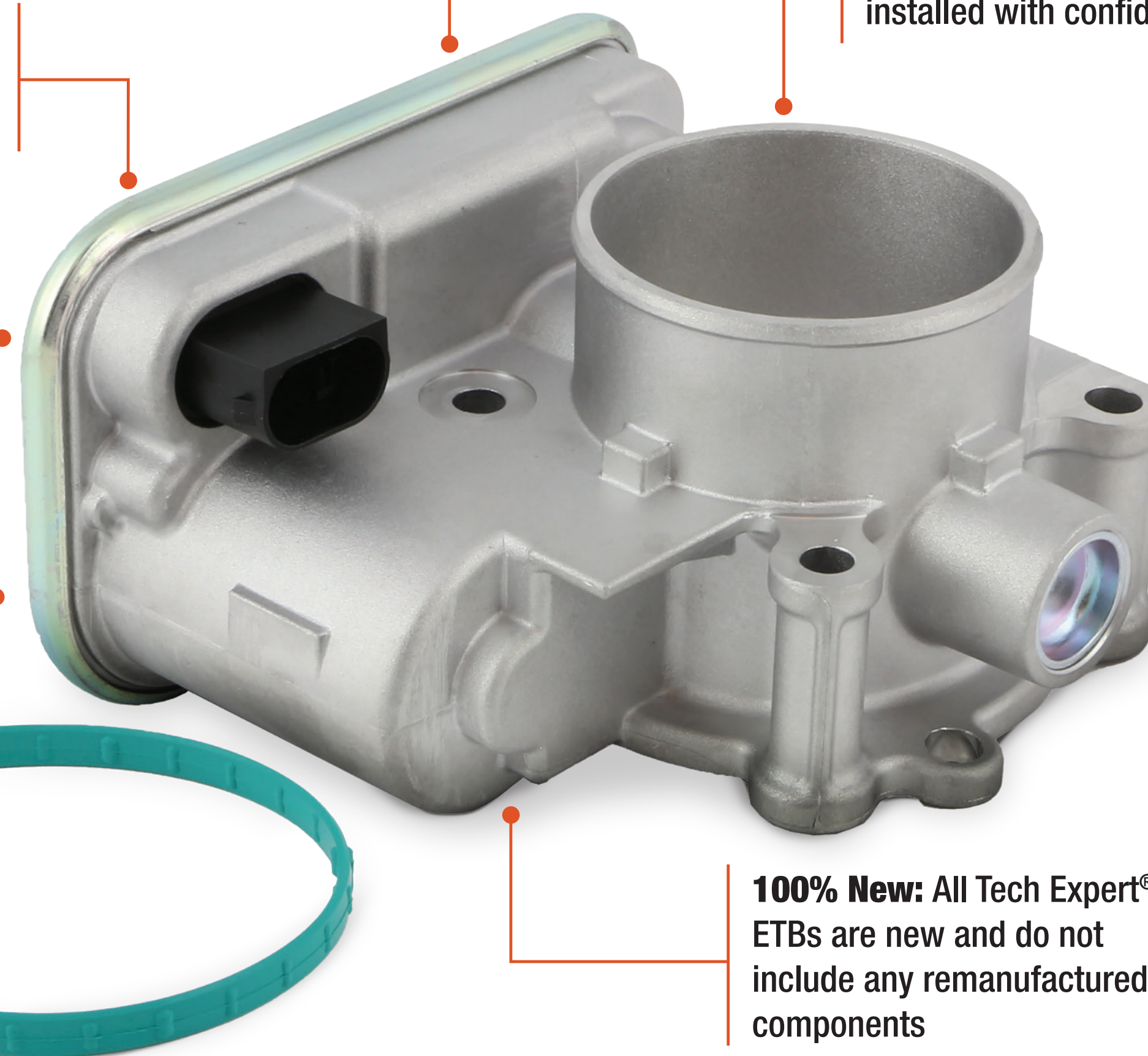
Design Improvements:
Enhanced gear train and materials for improved durability

Durability: Elastomeric seal protects sensor from hard underhood environment conditions

Includes Gasket:
for a complete repair

Testing: Calibrated and tested so it can be installed with confidence

100% New: All Tech Expert® ETBs are new and do not include any remanufactured components

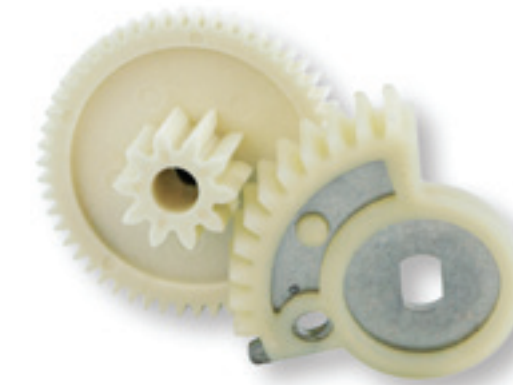


A Closer Look at Our Premium ETBs



Housing

Our housing is made of corrosion-resistant aluminum and CNC-machined to a surface finish of 0.4 microns. Plus, we use Computational Fluid Dynamic (CFD) software to verify the velocity, mass air flow, and pressure losses through the electronic throttle body.



Gear Train

Designed and simulated using sophisticated gear design software and precision-molded in the U.S.A., our double reduction gear train uses powdered metal and high-strength synthetic materials to prevent gears from failing.



Throttle Plate Shaft

Our stainless steel throttle plate shaft is precision-machined and centerless ground to ensure proper alignment of the throttle plate in the throttle bore, and low friction when used with precision needle roller bearings.



Throttle Plate

Our brass and aluminum throttle plates are CNC-machined with tolerance less than 0.001 inches.



Bearings

We double-seal both our deep-grooved ball bearings and drawn cup needle roller bearings to control the amount of air leakage from the bearings into the intake. Plus, our bearings are designed to operate in the housing between -40°F and 284°F.



Motor

Our motors are rated for exceptional life in temperatures ranging from -40°F to 248°F. The integrated ball-bearing design of our motor helps minimize cogging torque and our dynamometer testing ensures OE-matching performance.

Echlin® Pro Training Tech Tips

Echlin® Pro Trainers have installed hundreds of ETBs and trained thousands of technicians. Here's what they say to look out for during an ETB install.



Many ETB problems are caused by a loose pin fit at the electrical connector — Do your customer a favor and replace the pigtail connector when you're replacing the ETB



For some vehicles, relearning procedures are simple — Operate the engine for two minutes in park with AC off, two minutes in park with AC on, two minutes in drive with AC off, and two minutes in drive with AC on



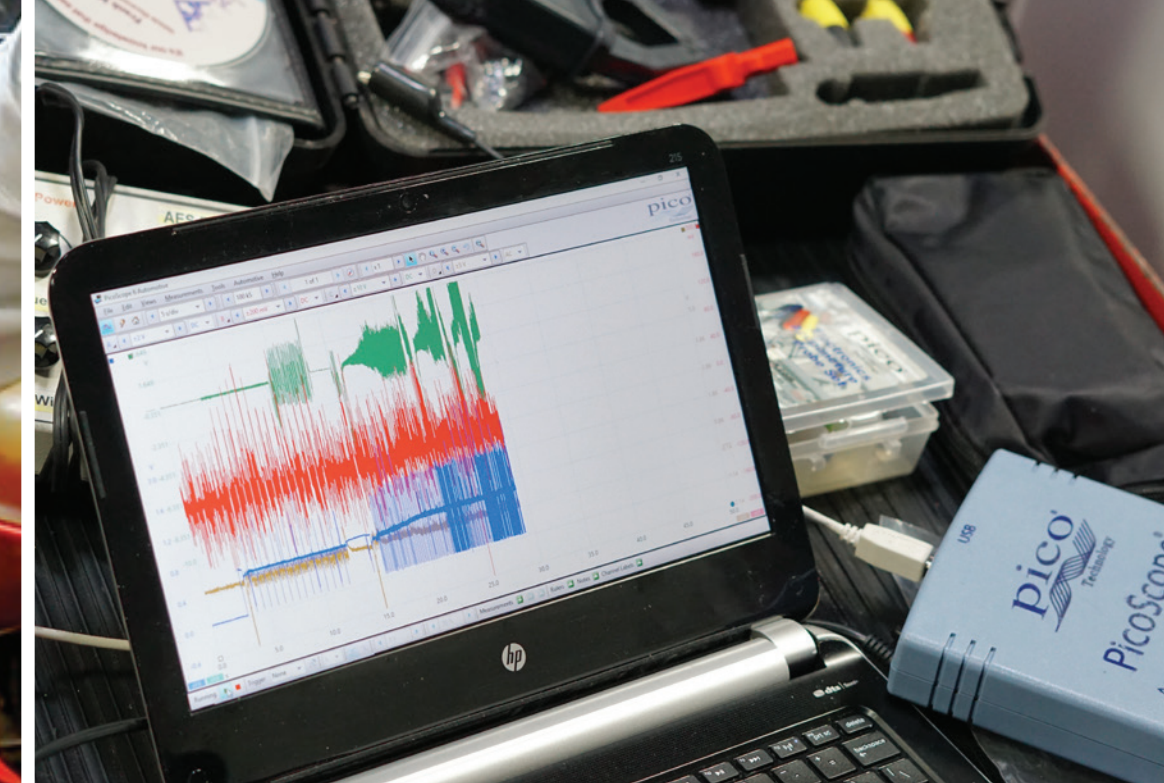
High idle or intermittent stalling are common concerns after replacing an ETB if the proper relearn procedure isn't followed — Refer to service information to verify if and how to perform a relearn for the vehicle you're working on

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

Diagnosing VW Drive By Wire
Electronic Throttle Control 2023
Electronic Throttle Control
Fundamentals
Ford Electronic Throttle Control
GM Electronic Throttle Control
Throttle Body Diagnostics



Available Classes

Ford Gas Engines Update
GM Engine Controls
Honda / Acura Diagnostics
Nissan / Infiniti Diagnostics
Torque Management and Electronic
Throttle Systems
Toyota / Lexus Diagnostics
VW / Audi Diagnostics



For information on replacing Electronic Throttle Bodies, search “Throttle” on the **NAPA® Echlin®** YouTube channel