

ELECTRONIC THROTTLE BODIES & RELATED PARTS

Highlights

1

We are a basic, expert manufacturer with more than 200 ETBs covering 190M+ VIO

2

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

3

Gaskets included for a complete repair, where required



What's in your box?



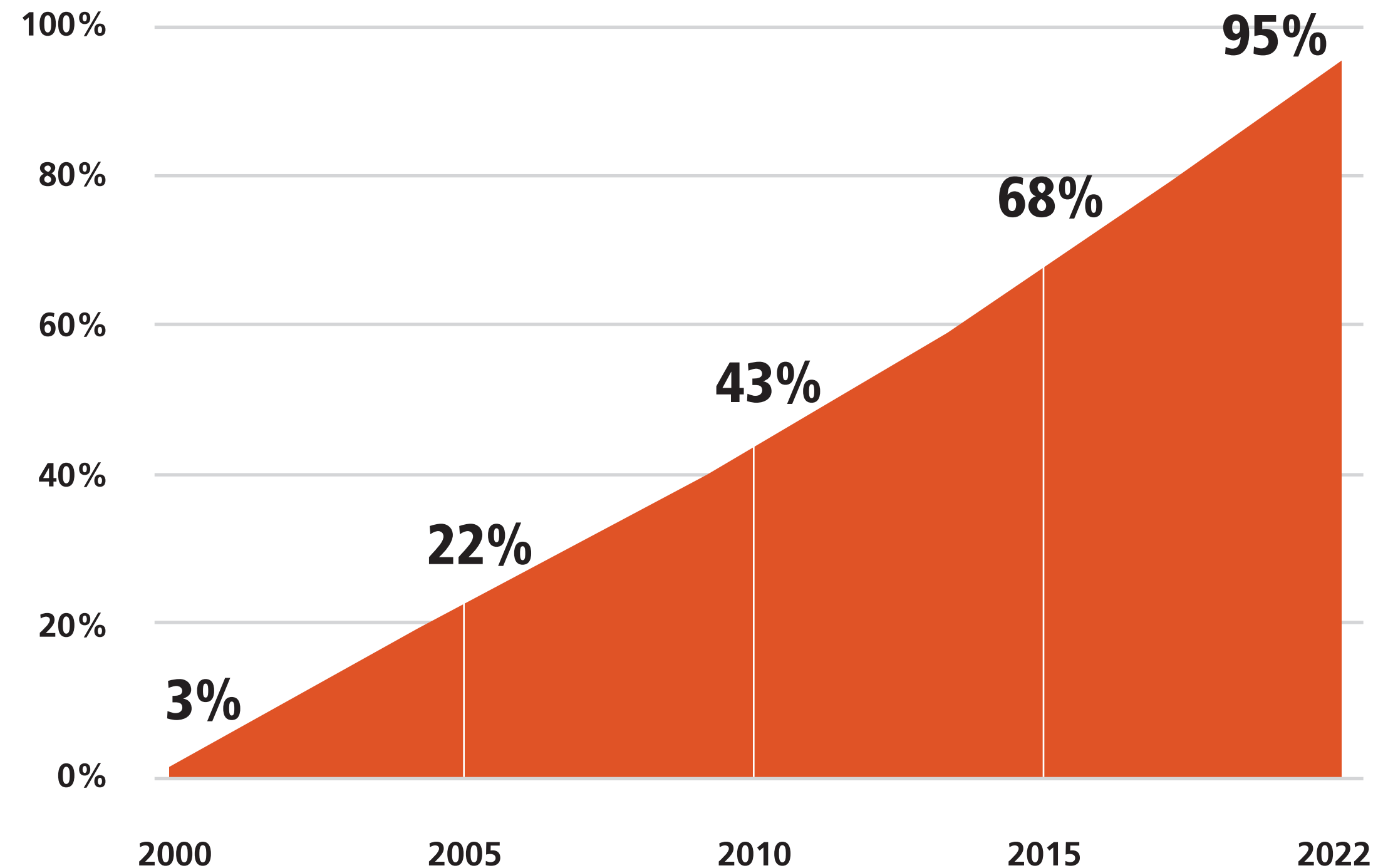
NAPAEchlinETB.com

ELECTRONIC THROTTLE BODIES

Growing Market

Vehicle manufacturers began using ETBs to improve fuel economy and reduce emissions. Today, there are more than 250 million vehicles on the road with ETBs. High OE failure rates, especially in the gear train, will make ETBs a strong category for years to come.

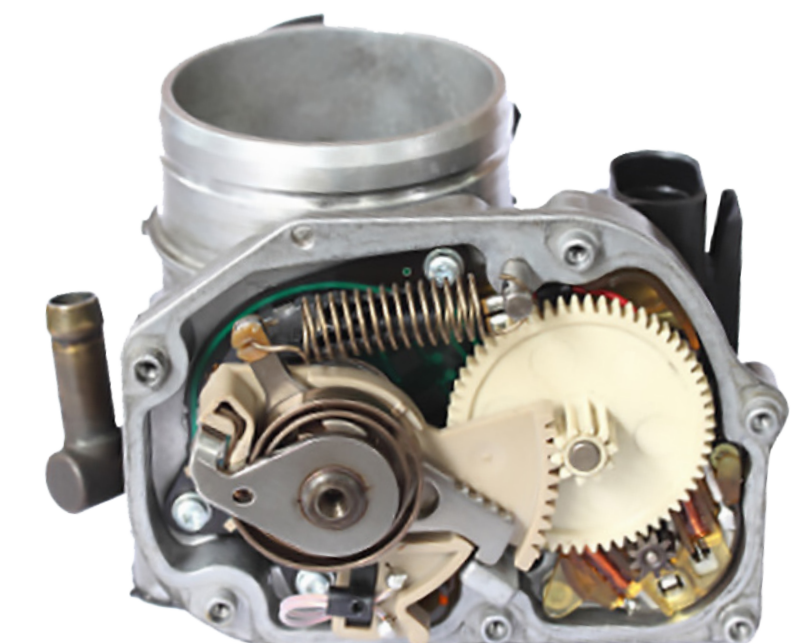
Vehicles Equipped with ETBs



Source: SMP Internal Data

Did You Know

A complex gear train, moving up to hundreds of times per mile, with no oil; that describes the inner workings of an Electronic Throttle Body and what leads to high failure rates and repair opportunities.



ELECTRONIC THROTTLE BODIES

Sales 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 premium ETB replacement includes improved geometry and high-strength materials for a better performing and longer-lasting gear train.

OE PROBLEM

Excessive wear and broken gear teeth on Jeep / Chrysler Electronic Throttle Bodies



Jeep / Chrysler 2.0L & 2.4L

Chrysler 200 (14-11)
Chrysler Sebring (10-07)
Dodge Avenger (14-08)
Dodge Caliber (12-07)

Dodge Journey (18-09)
Jeep Compass (17-07)
Jeep Patriot (17-07)

TECH EXPERT® SOLUTION

Tech Expert's popular ETB172 Electronic Throttle Body is designed specifically for Jeep / Chrysler applications. This premium ETB features engineering upgrades including a reinforced gear train that outperforms the original design for durability



ELECTRONIC THROTTLE BODIES

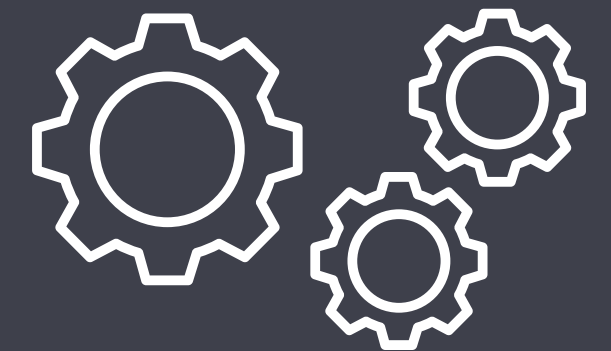
Impact on Engine Systems



A worn or malfunctioning ETB may not be able to control the blade as designed — this will lead to decreased fuel mileage and acceleration problems



A rough idle, stalling or surging are all signs the Throttle Position Sensor may not be not functioning properly



ETBs usually fail because of wear on the gear train and bearings from age and mileage — contamination can also cause an ETB to fail

TECH EXPERT®
ELECTRONIC THROTTLE BODIES

What's New

ETBs are one of the fastest growing categories in the industry — Tech Expert® is committed to regularly introducing new Electronic Throttle Bodies.

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



ETB771
Nissan Versa
(2019-12)
VIO: 720K



ETB775
Mazda 3
(2013-06)
VIO: 575K



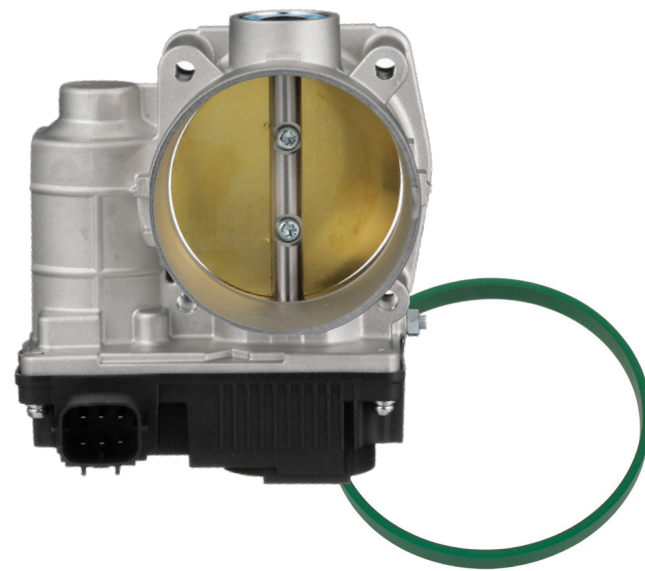
ETB574
Hyundai and Kia V6
(2012-06)
VIO: 525K



TECH EXPERT® ELECTRONIC THROTTLE BODIES

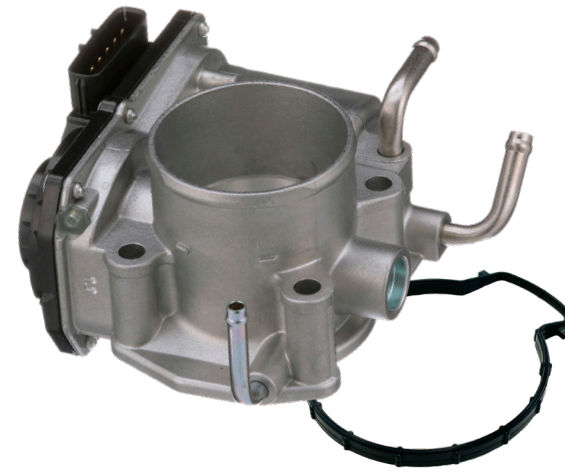
Top Movers

IMPORT APPLICATIONS



ETB501

Nissan / Infiniti Cars & SUVs
(2009-02)



ETB518

Toyota Camry, RAV4, Highlander
(2007-03)



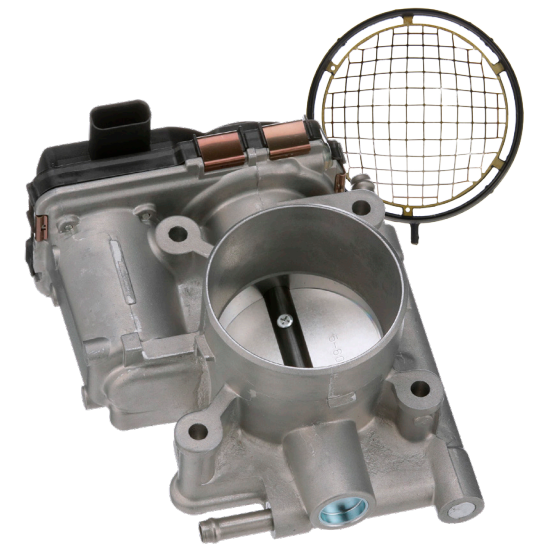
ETB730

Audi / VW Cars
(2014-09)



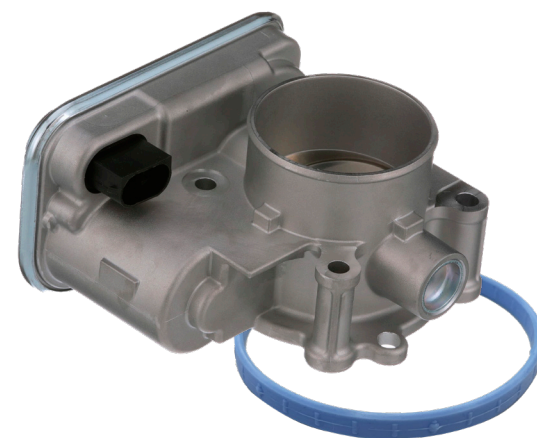
ETB502

Nissan Altima, Sentra, X-Trail
(2008-02)



ETB540

Mazda 3, 5, 6
(2007-03)



ETB172

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



ETB144

Ford / Lincoln Trucks & SUVs
(2020-11)



ETB145

Ford / Lincoln / Mercury
Cars & SUVs
(2020-09)



ETB119

GM Cars, Trucks, & SUVs
(2015-09)



ETB146

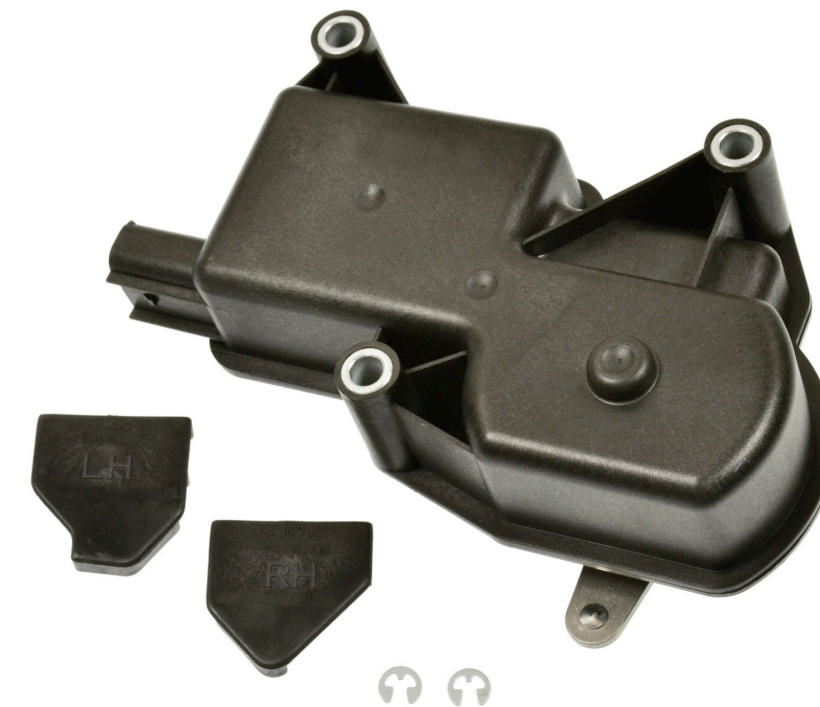
Ford / Lincoln Cars & Trucks
(2019-11)

DOMESTIC APPLICATIONS

TECH EXPERT®
ELECTRONIC THROTTLE BODIES

Related Parts

In addition to the highest quality replacement Electronic Throttle Bodies, NAPA® Echlin® offers a full line of key components necessary to repair the electronic throttle control system.



Throttle Position Sensors

Monitors the air intake to the engine and sends information to the vehicle's ECU

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

More than 375 TPS available with coverage through model year 2020

Accelerator Pedal Sensors

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

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

More than 480 APS available with coverage through model year 2022

Intake Manifold Actuators

Controls the airflow within the intake manifold

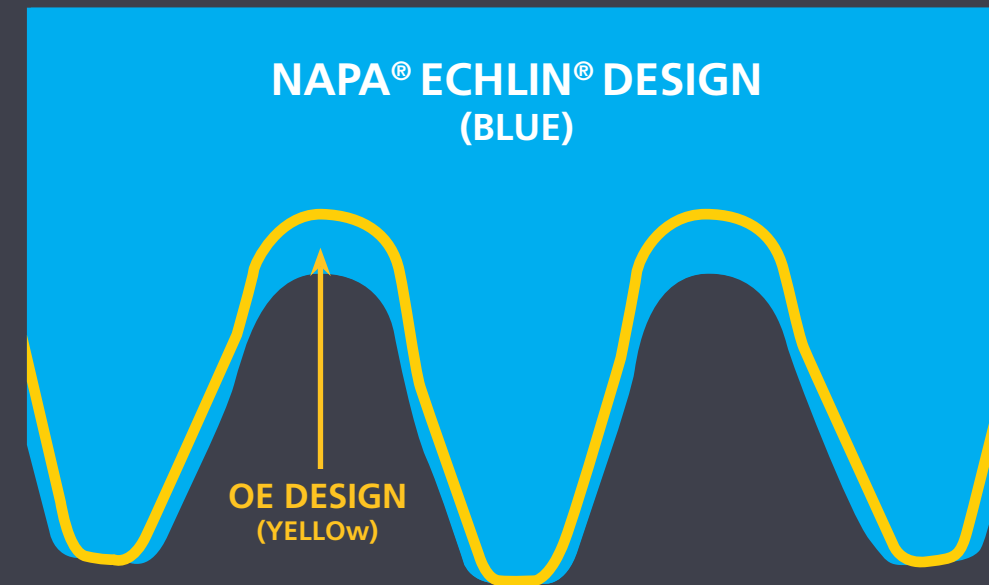
Tech Expert® Variable Intake Manifold actuators are designed with premium components to prevent intake linkage failure and deliver long service life

Coverage through model year 2021 for import and domestic vehicles

TECH EXPERT®
ELECTRONIC THROTTLE BODIES

Engineering Improvements

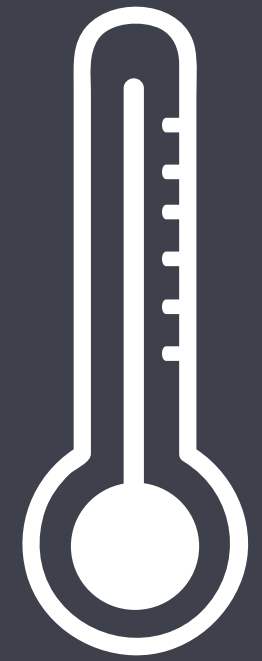
After identifying weaknesses in the OE electronic throttle body, NAPA® Echlin® engineers capitalized on their extensive gear design experience to develop a stronger, longer lasting ETB gear. Let's look at how upgrades to Tech Expert® ETB172 helped solve the OE problem.



NAPA® Echlin® engineers improved the gear stiffness by increasing tooth thickness and decreasing overall tooth length to build a more durable gear



After studying the failed OE unit, we increased face width on the NAPA® Echlin® gear by 17% to reduce stress on the gear teeth



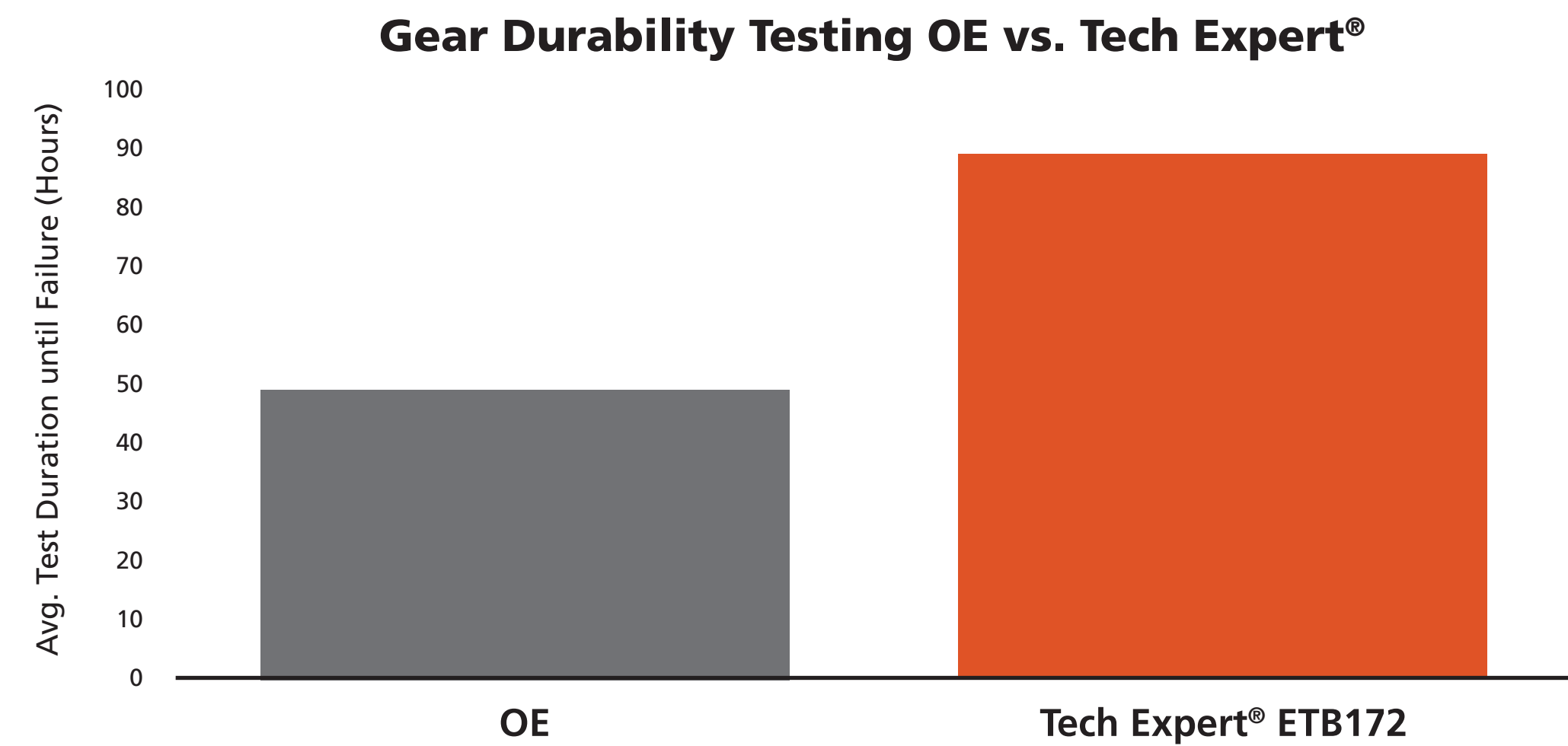
We manufacture gears out of premium application-specific materials to ensure performance in high-load and high-temperature conditions

TECH EXPERT®
ELECTRONIC THROTTLE BODIES

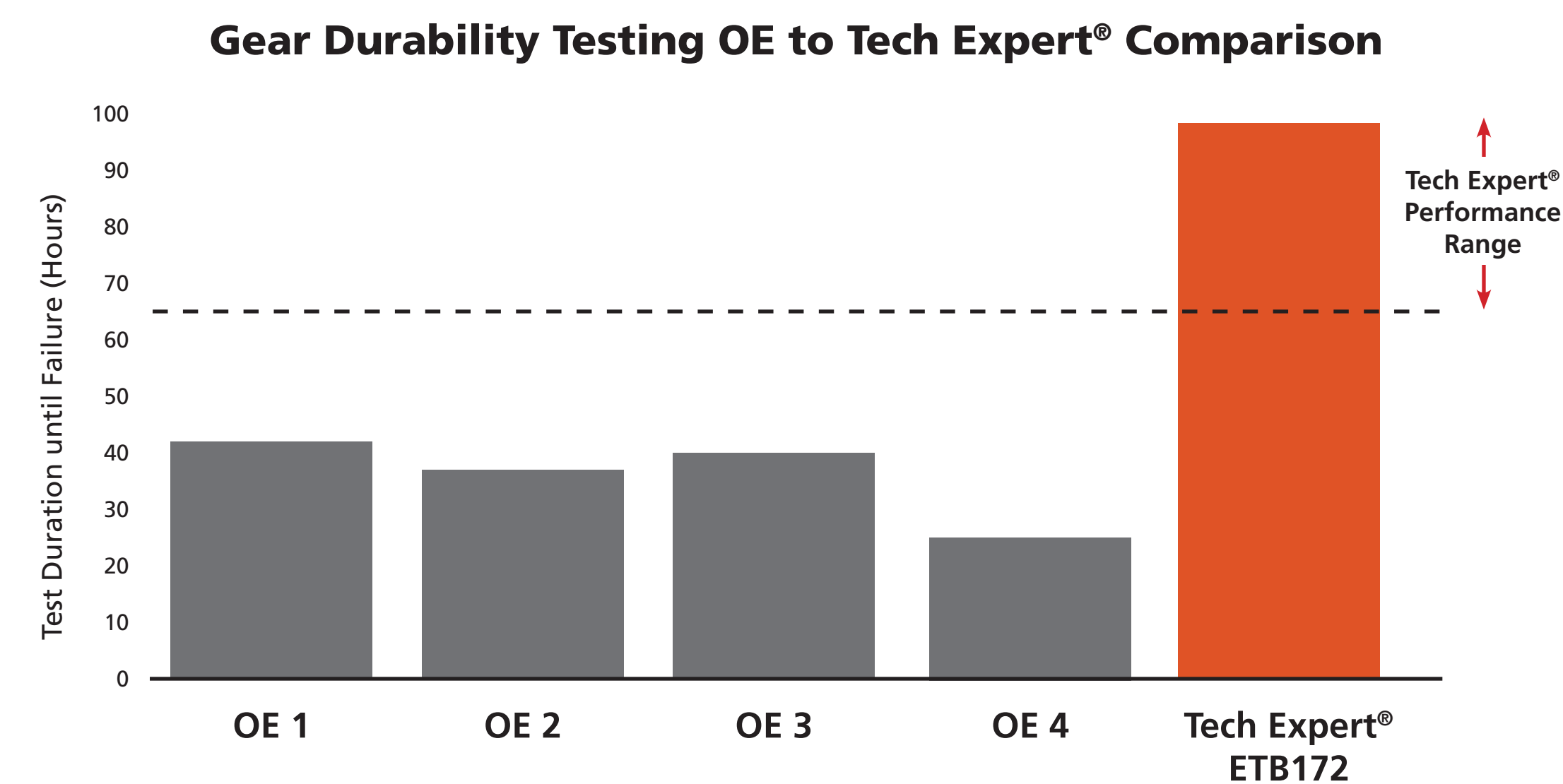
Gear Durability Testing & Results

Let's take a closer look at how NAPA® Echlin® engineered design improvements for our premium S20176 replacement ETB for the failure-prone Jeep / Chrysler applications — outperforming the original for durability and service life.

Tech Expert® outperforms the original for durability



Tech Expert®
performed
80%
better
than the OE



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

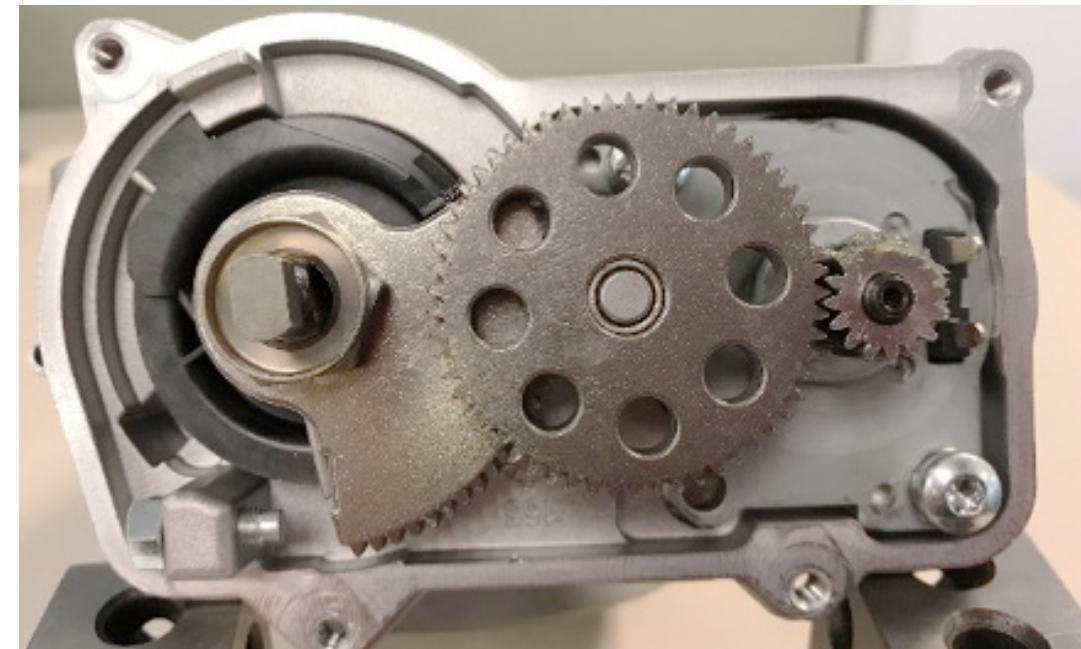
Source: SMP Testing Lab, 2020

ELECTRONIC THROTTLE BODIES

NAPA® Echlin® Engineering

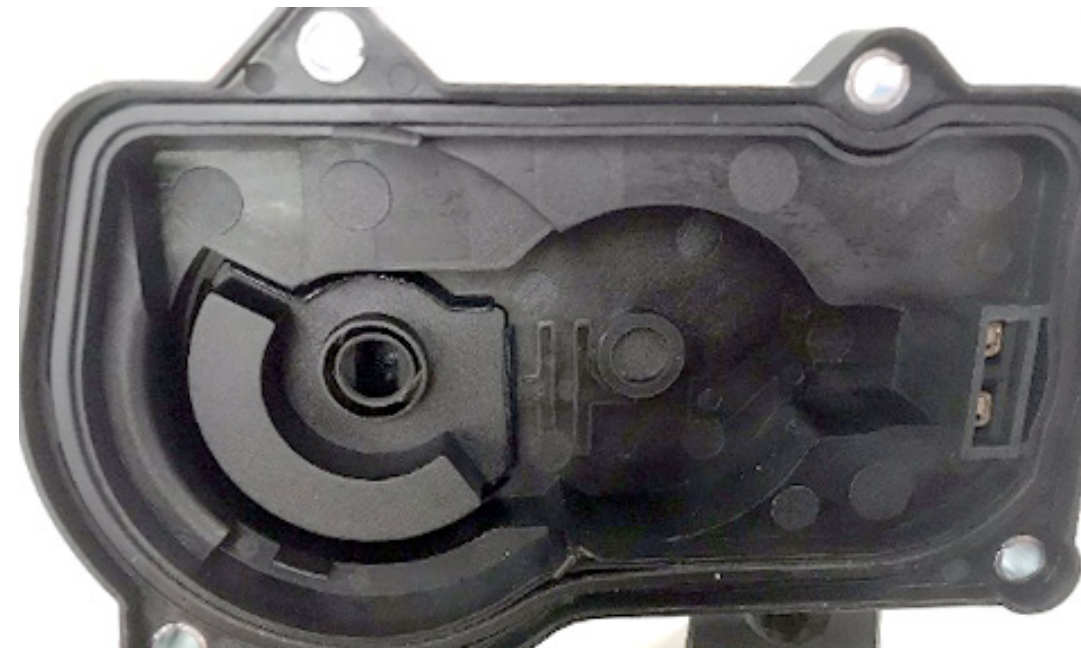
A Closer Look

Premium ETBs start with premium components and innovative design. Let's take a closer look at how NAPA® Echlin® goes the extra mile with our popular 158S20006 Electronic Throttle Body for late-model GM SUVs and trucks.



Stainless Steel Gears

NAPA® Echlin® gearset is made of stainless steel and conforms to highest standards of precision available for a better performing ETB



Totally Enclosed Contact Brushes

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



Components Designed to Last Longer

NAPA® Echlin® engineered a large 5mm screw tip to come into contact with the steel gear to resist wear over long-term use.

ELECTRONIC THROTTLE BODIES

Testing and Validation

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

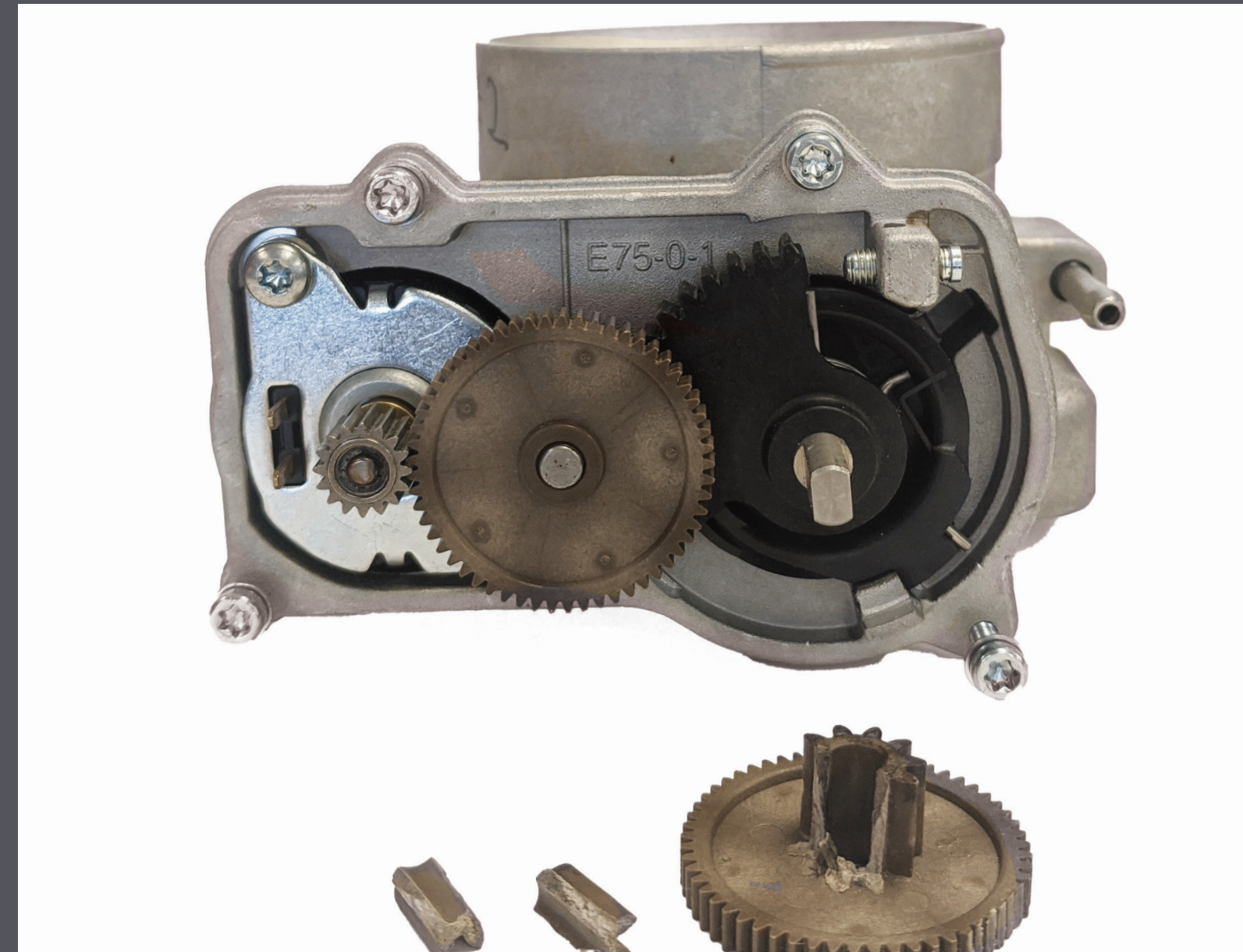
NAPA® Echlin's superior quality stands up to the most severe underhood conditions and strenuous demands of today's engines – the competition did not.

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 NAPAEchlinETB.com.com for detailed test results

COMPETITION

FAILED



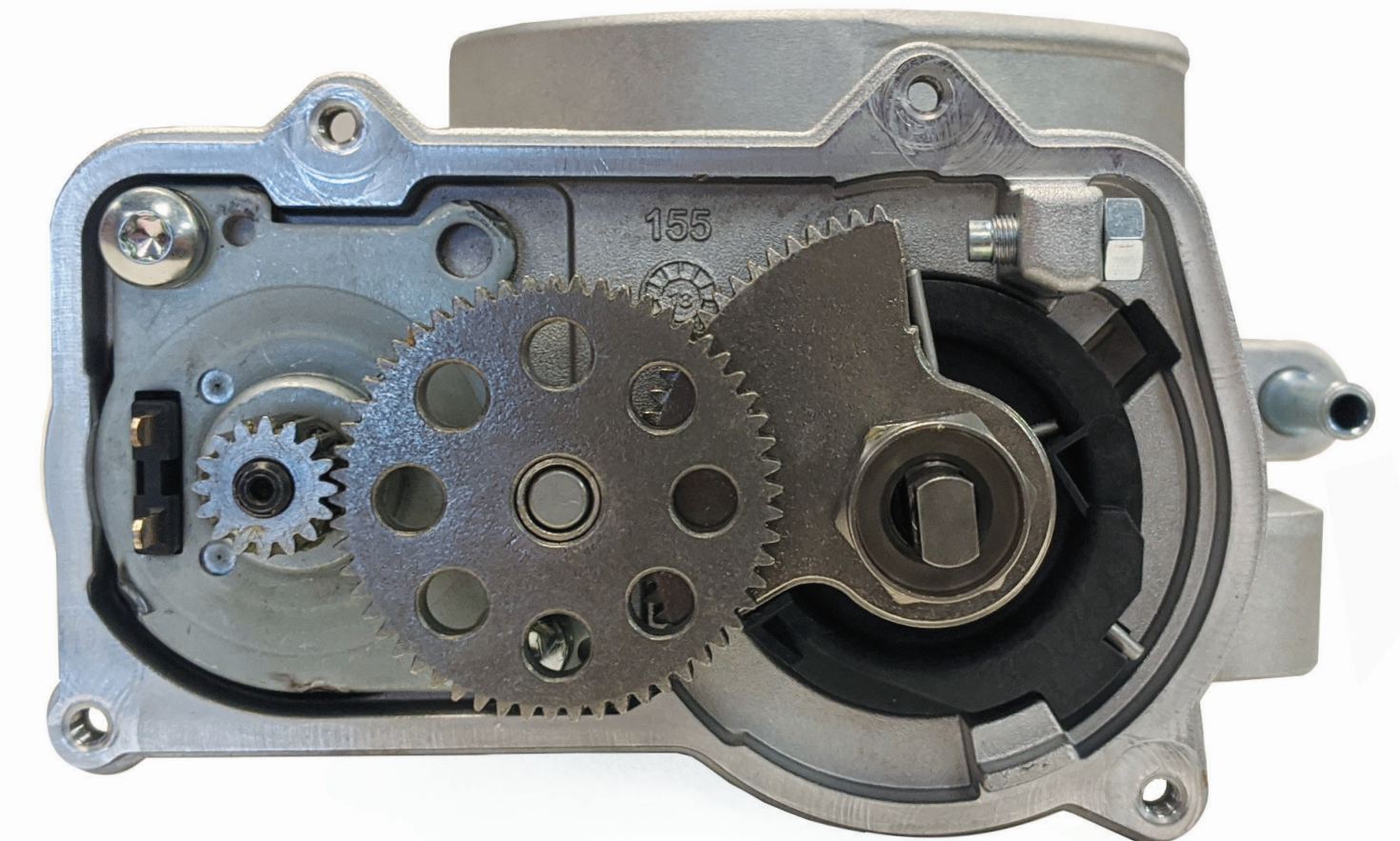
After only 10 days of testing, the competitor's ETB failed with a cracked compound gear

Inherent design flaws rendered the competitor's unit unusable

TECH EXPERT

ETB103

PASSED



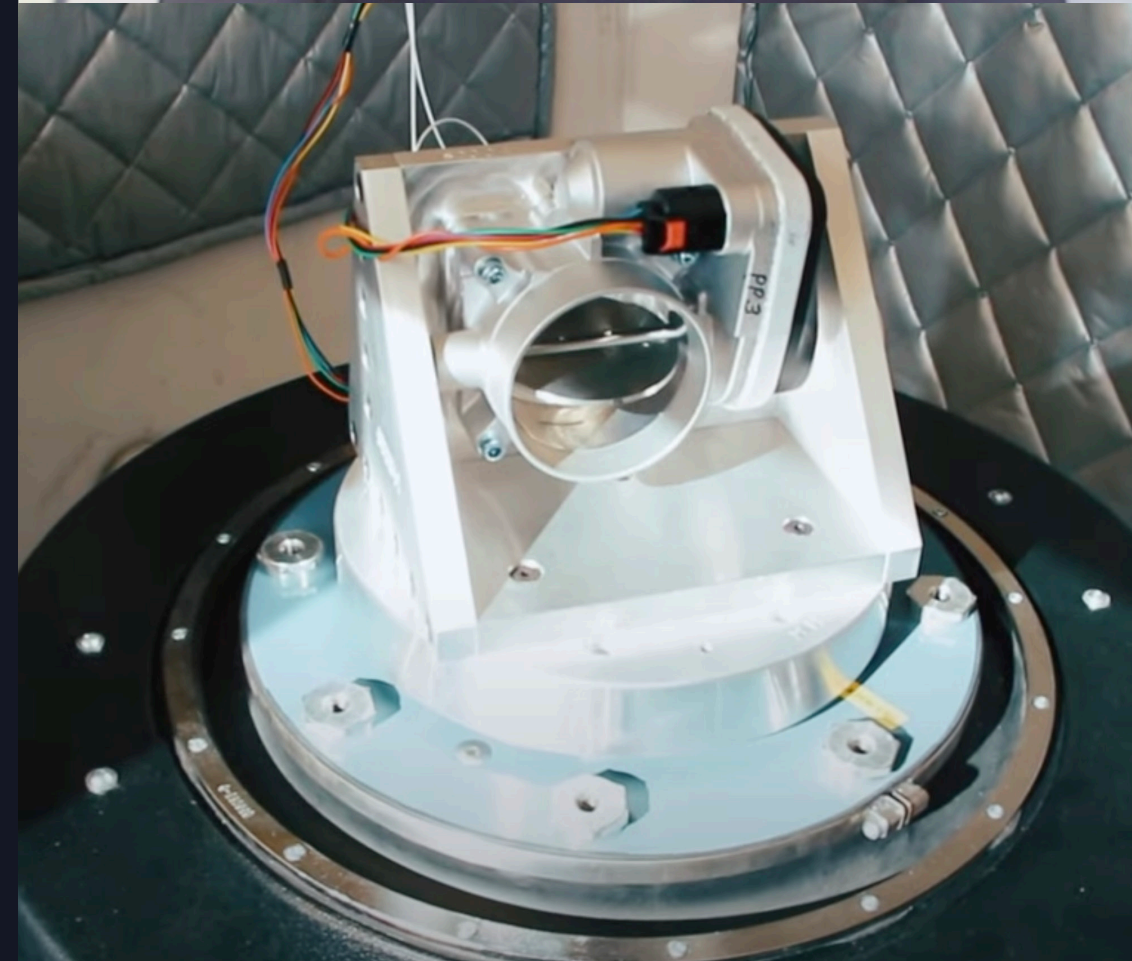
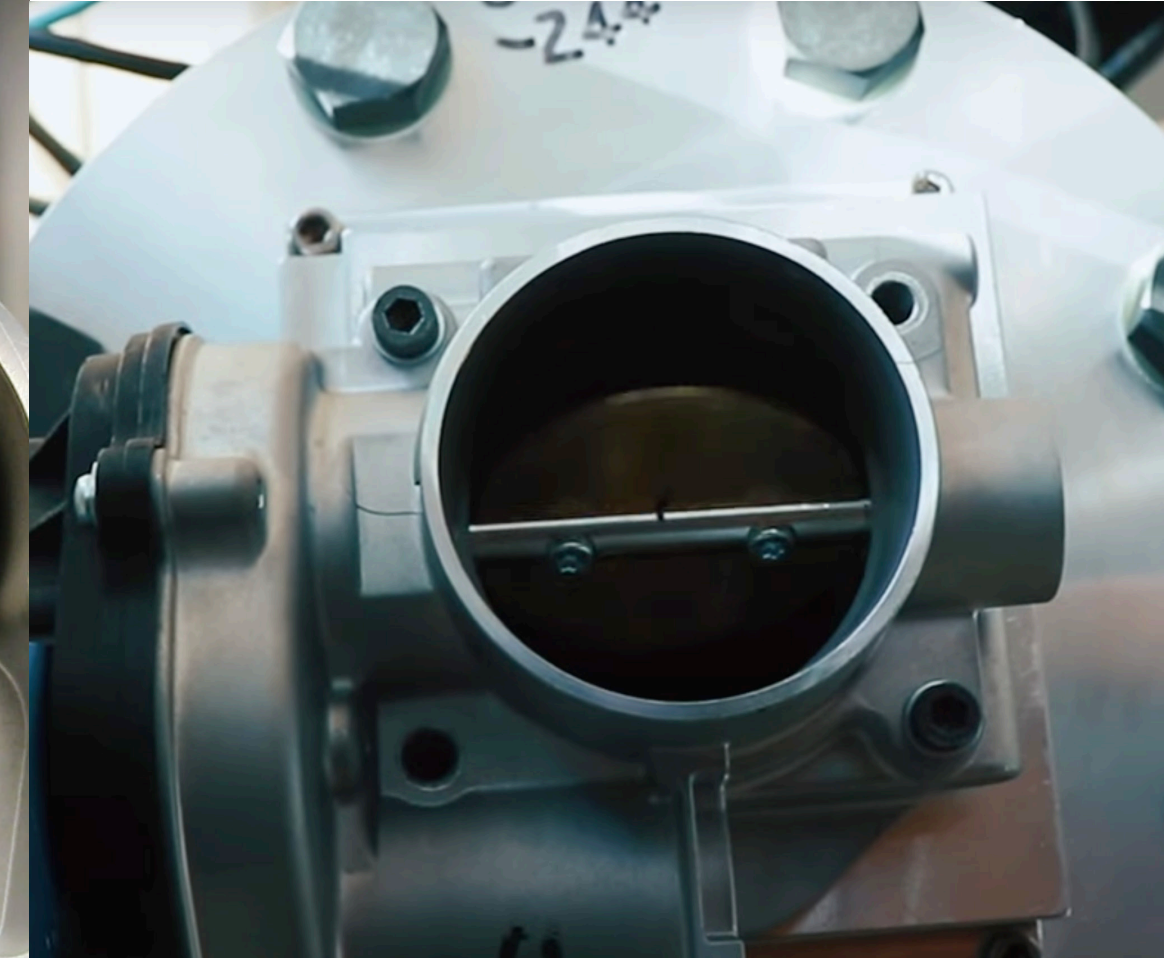
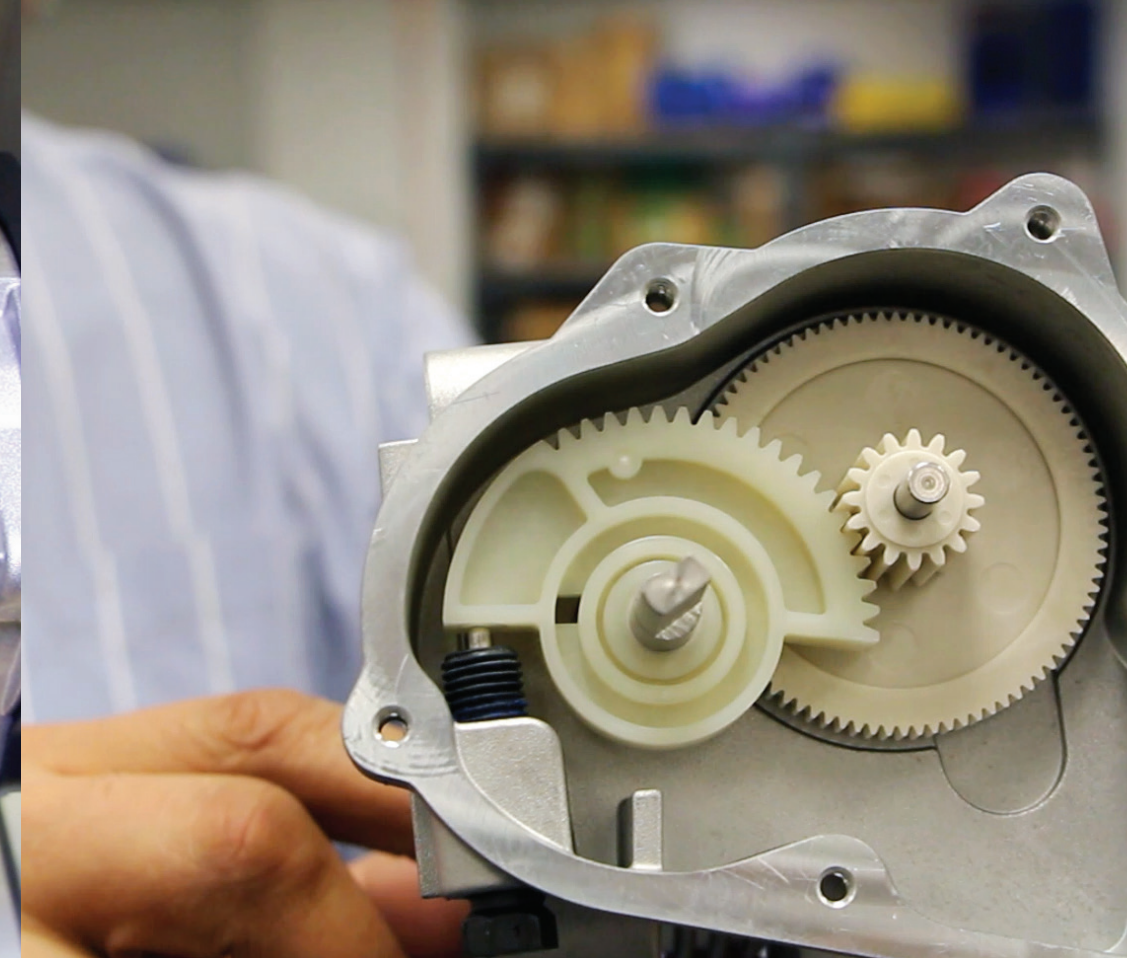
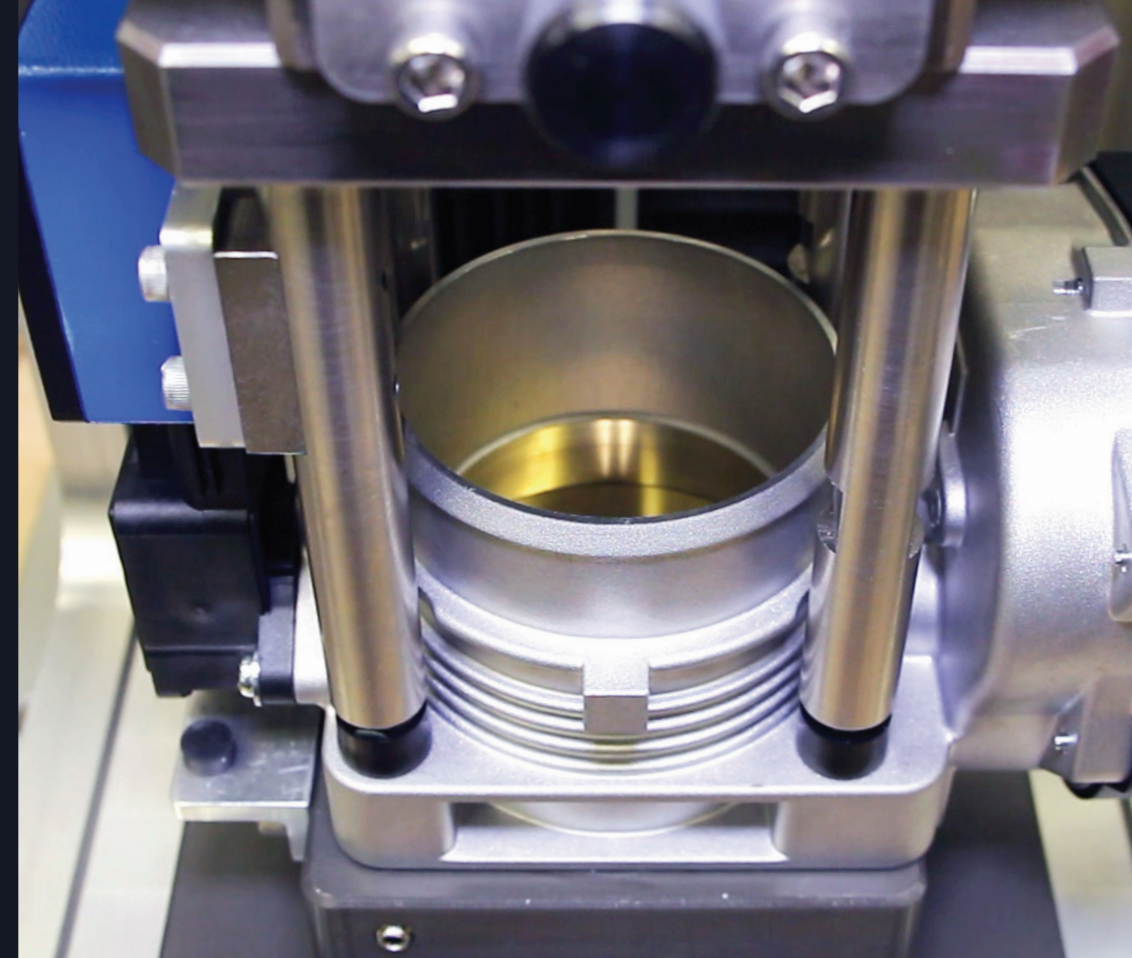
Even after 45 days of endurance testing, our ETB was intact and fully operational

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

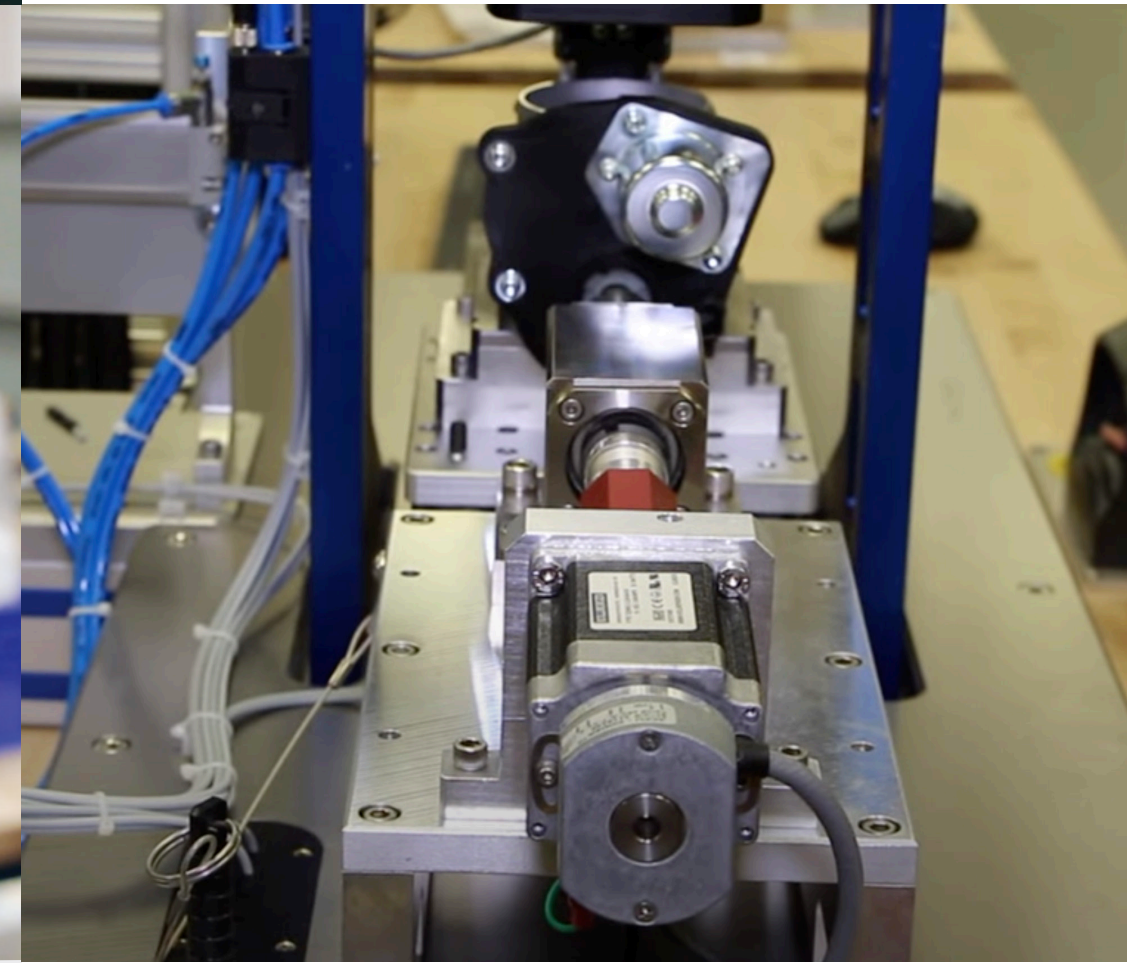
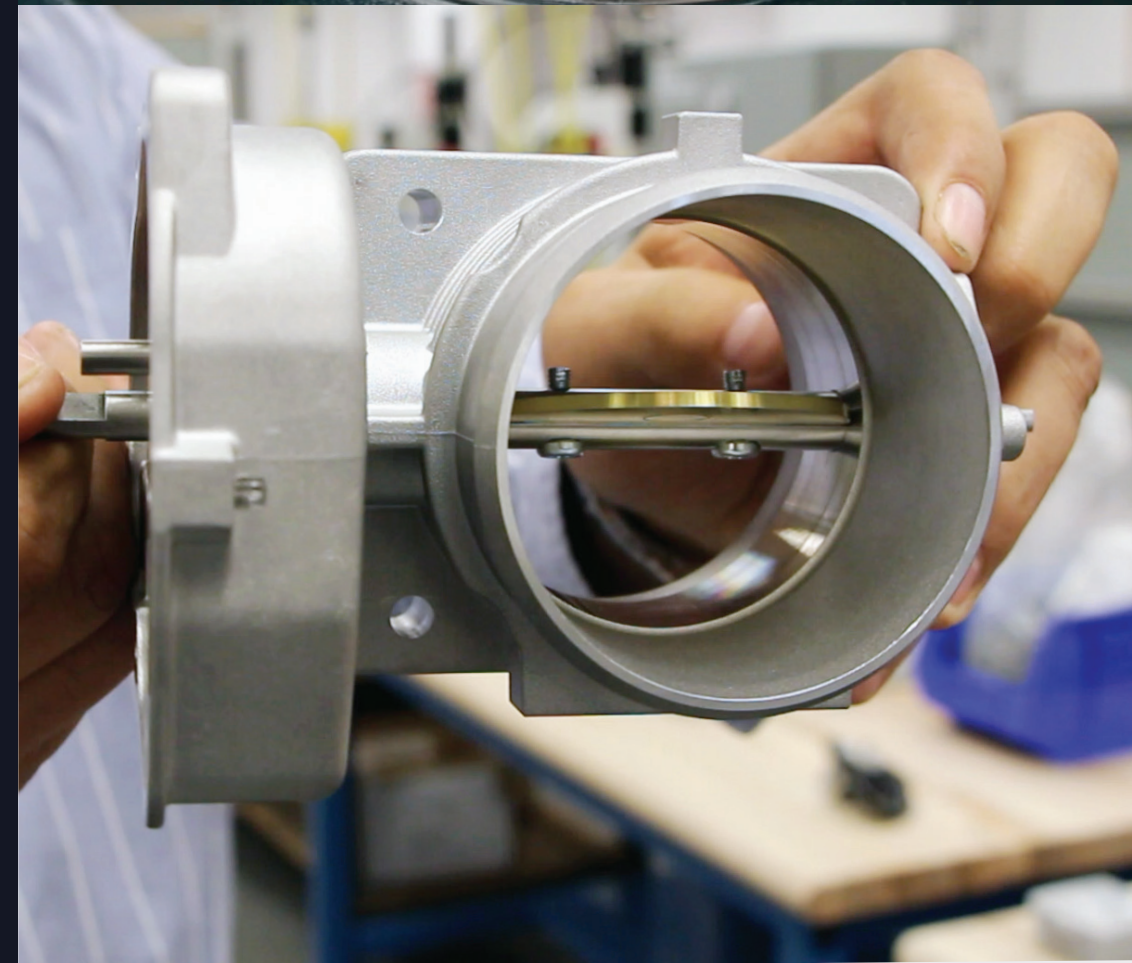
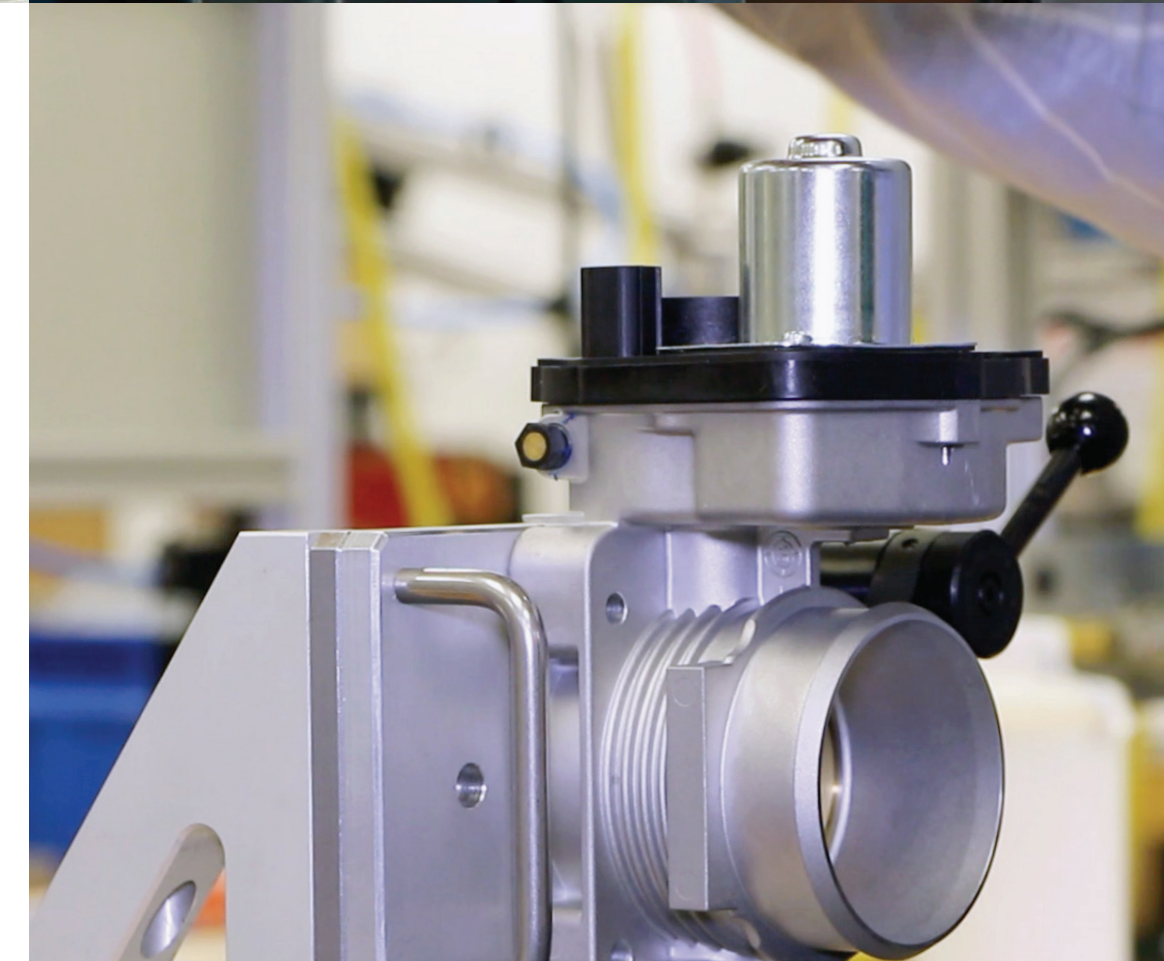
**TECH EXPERT® ELECTRONIC
THROTTLE BODIES**

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 fit, form and function. Tech Expert® ETBs are application-specific and precision engineered for the units they are replacing.



100% NEW
(Not Remanufactured)
Electronic Throttle Bodies



ELECTRONIC THROTTLE BODIES

NAPA® 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.

Custom elastomeric seal protects sensor from environmental underhood elements such as dust, vapor, and liquids

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

All NAPA® Echlin® manufactured ETBs are built in our North American IATF 16949-certified facility

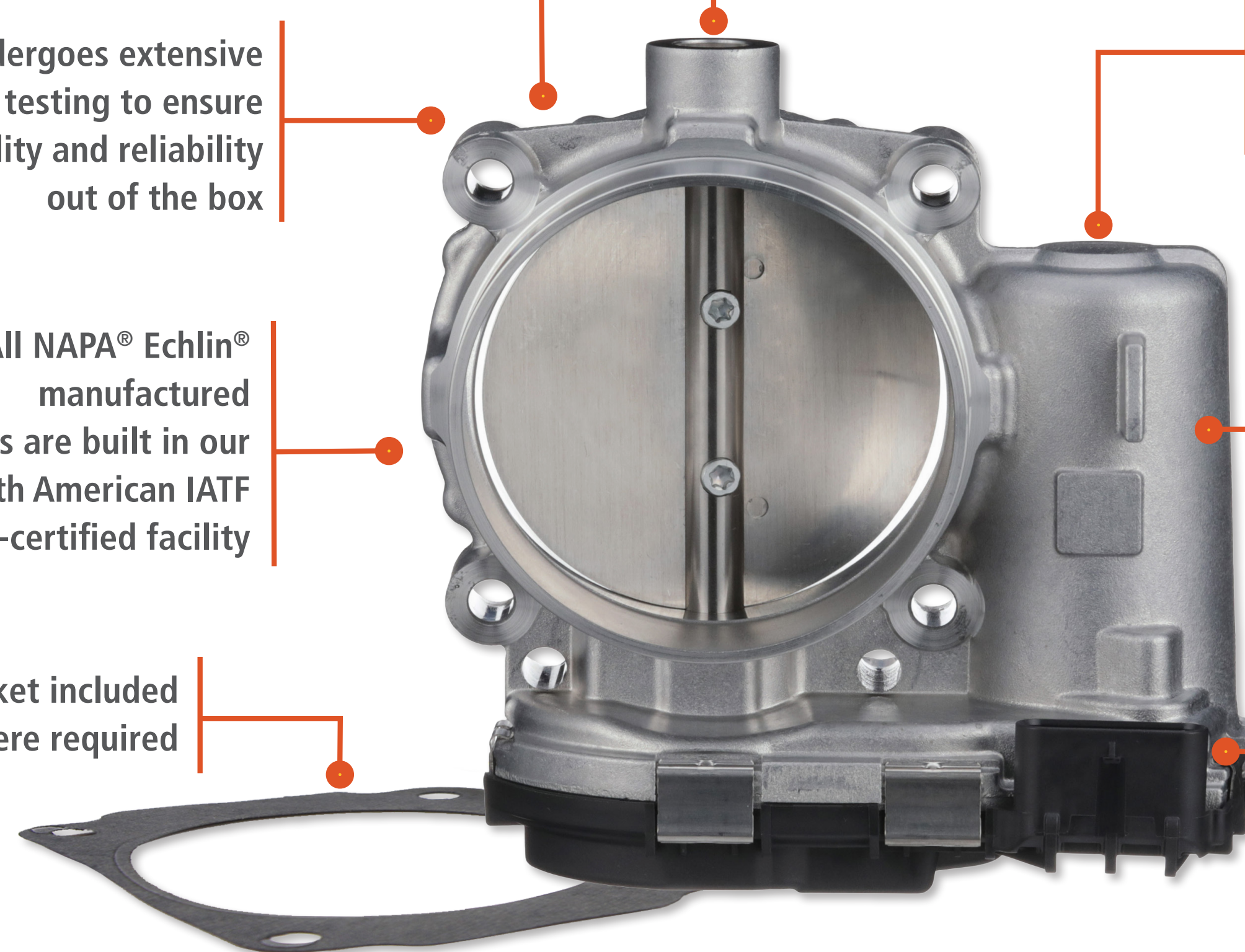
Gasket included where required

As a basic manufacturer NAPA® Echlin® engineers upgrades to failure-prone OE components

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

100% calibration and testing ensure superior performance and durability

Magnet molded in high-performance polymer to ensure consistent location and low friction with bearing surfaces



TECH EXPERT®

ETB180
Chrysler/Dodge/Jeep
Cars, Trucks & SUVs
(2021-11)

TECH EXPERT®
ELECTRONIC THROTTLE BODIES

A Closer Look at Our Premium ETBs



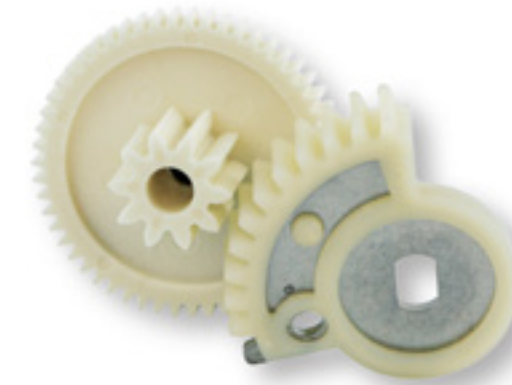
Housing

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.



Throttle Plate

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



Gear Train

Designed and simulated using sophisticated gear design software and precision-molded in the U.S.A., our double reduction gear train uses powder metal and plastic materials to prevent gears from becoming overstressed.



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.



Throttle Plate Shaft

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



Motor

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

TECH EXPERT®
ELECTRONIC THROTTLE BODIES

NAPA® Echlin® **Training Tech** **Tip**

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



**To avoid idle drivability concerns,
after a component from the
electronic throttle system has been
replaced, it's important that the
PCM memory be erased, and the
electronic throttle control system
values be relearned**



**Some vehicles require a reflash, others
an extensive relearn procedure, but some
manufacturers' procedures are relatively
simple — these values can be learned by
operating the engine for two minutes
in park with AC off, two minutes in park
with AC on, two minutes in drive with AC
off, two minutes in drive with the AC on**

**TECH EXPERT®
ELECTRONIC THROTTLE BODIES**

NAPA® Echlin® Professional Training

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

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

An extension of NAPA® Echlin® training, our extensive ADA-compliant YouTube professional video library features more than 500 installation and product videos.



**PRO
TRAINING**
ON-DEMAND

NAPA® Echlin® offers an annual subscription to Pro Training On-Demand. This subscription grants access to more than 200 English, and over 50 Spanish 1-hour courses – and the NAPA® Echlin® on-demand library continues to grow. Topics range from fundamentals to advanced concepts, and include HVAC, diesel, hybrid, ignition, injection, electrical and communication diagnosis.



**PRO
TRAINING**
ON-SITE

Whether in-person at your location or virtually via computer, all NAPA® Echlin® Training classes feature a live instructor and are fully interactive as students work through real-life scenarios. Virtual class “workbooks” include on-demand links to video content and student configurable scan data.

Visit NAPAEchlinTraining.com