



ECHLIN®

VARIABLE VALVE TIMING PROGRAM

A COMPLETE VVT PROGRAM

The wrong VVT component can lead to catastrophic engine failure. That's why selecting the correct VVT part for your customer is absolutely critical.

Each NAPA® Echlin® component is engineered with features to ensure that they will perform under the most extreme conditions. NAPA® Echlin® VVT components are direct-fit OE replacements designed to match OE-designed performance for horsepower, torque, emissions and fuel economy.

NAPA® Echlin® offers the most comprehensive VVT program in the aftermarket, with more than 600 VVT Solenoids, Sprockets and Kits. Many NAPA® Echlin® VVT components include gaskets for easy installation.

The end result is a complete program comprised of premium-quality VVT components that perform flawlessly and stand up to real-world conditions



NAPA® Echlin® offers the highest-quality VVT components and kits necessary to maintain and repair today's complex VVT systems.

- VVT Actuator Connectors
- VVT Chain Tensioners
- VVT Control Valves
- VVT Lift Eccentric Shaft Sensors
- VVT Oil Control Valves
- VVT Position Sensor Magnets
- VVT Service Kits
- VVT Solenoids
- VVT Solenoid Kits
- VVT Spool Filters
- VVT Spool Valves
- VVT Sprockets



ECHLIN®

LOOKS RIGHT. FITS RIGHT. PERFORMS RIGHT.

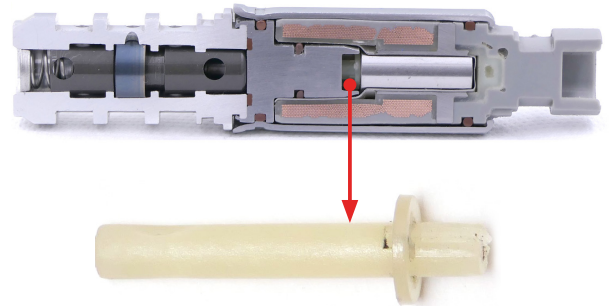
WHEN CHOOSING A REPLACEMENT, YOU HAVE THREE CHOICES

1

A low-cost aftermarket part:

Often uses lower-quality materials (plastic instead of metal) to save costs

A failed VVT solenoid can cause catastrophic damage to the engine



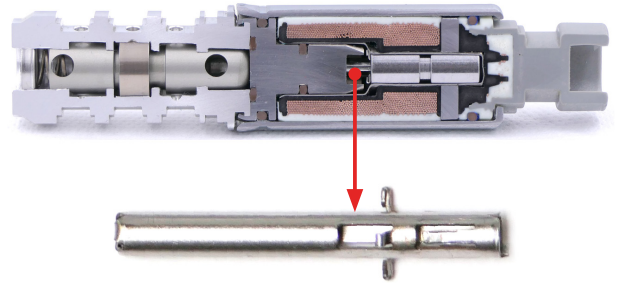
Uses a plastic internal shaft which can wear, break or crack prematurely

2

An original equipment part:

The same design and material that just failed

May not even be as good as the original, as it could be a sourced part in a branded box



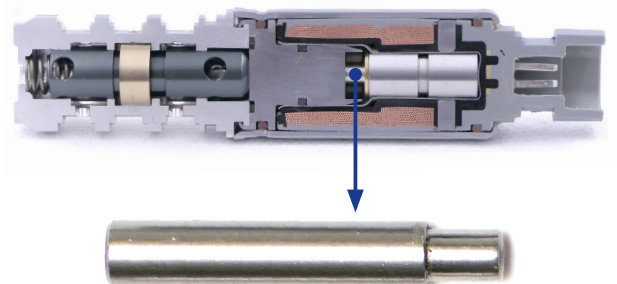
Uses an aluminum internal shaft which can deform over time and alter the timing of the valves

3

A high-quality replacement from NAPA® Echlin®:

Includes design improvements for increased durability and gaskets for easy installation

Tested on vehicles and in the lab for precise performance



Our VVS1100 uses an internal stainless-steel shaft for consistent performance and durability

Source: SMP Testing Lab

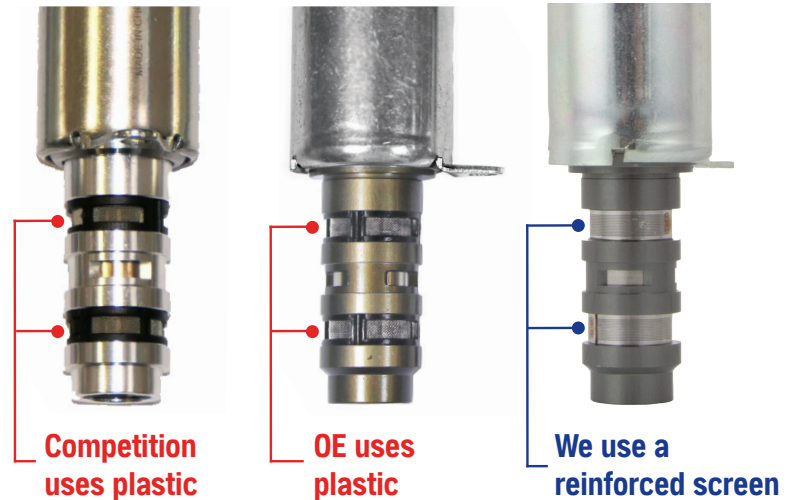
WE IDENTIFY WEAK POINTS

Our engineers identify weak points in the original design and engineer improvements to build the highest-quality VVT components in the industry.

PLASTIC COMPONENTS

OE and competitors' VVT solenoids use plastic which often fails to hold the screen to the body.

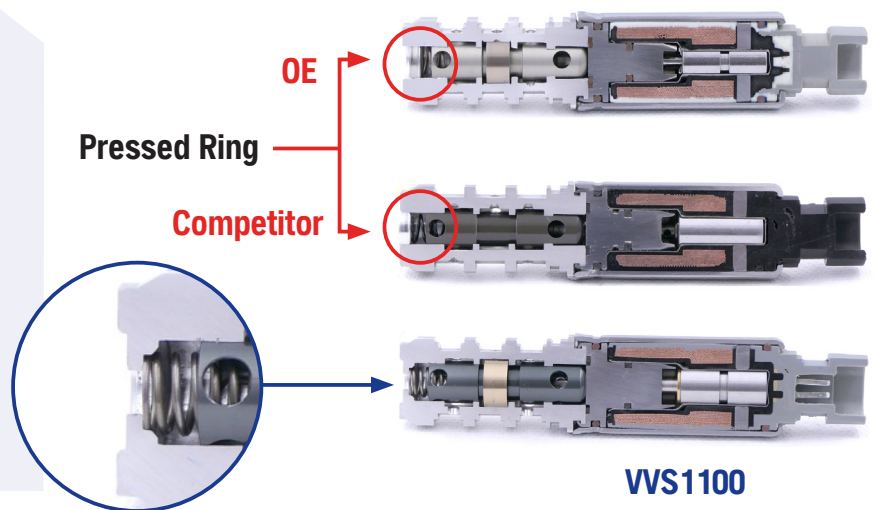
Our VVT Solenoids feature an improved screen stamp plus welded reinforcement.



POOR RING SUPPORT

OE and competitors' VVT solenoids use pressed rings for spring support that can fall apart over time.

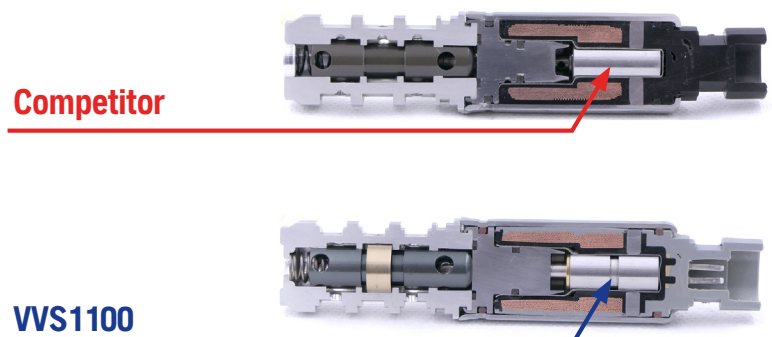
Our VVT Solenoids feature a closed valve body for spring support, with no chance of falling apart, even after millions of valve switches.



NO LUBRICATION

Competitors do not use grooves for lubrication resulting in slower valve switching, and accelerated wear.

Our VVT Solenoids include a groove on the armature for lubrication, allowing for faster valve switching and decreased wear of the armature.



Source: SMP Testing Lab

WE MANUFACTURE IMPROVEMENTS

We engineer design improvements that result in durable components manufactured to operate under harsh underhood conditions.

OE



Original – Metal Paddles

- Inserted metal paddles produce iron shavings
- Paddles wear rapidly
- Impedes performance
- Shortens service life

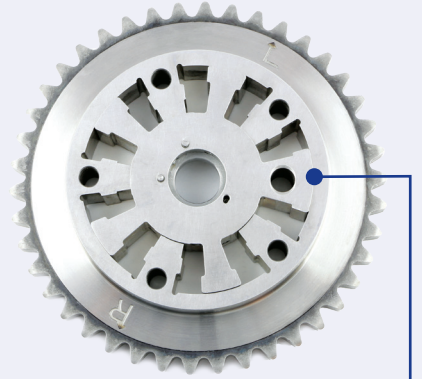
Competitor D



Inferior – Plastic Paddles

- Chamfered slot and plastic paddle inserts
- Components wear easily
- May not hold up under normal operation

ECP1100



Best – Integrated Design

- Larger contact area
- No paddle to wear out
- Fast response times
- Improved performance
- Longer service life

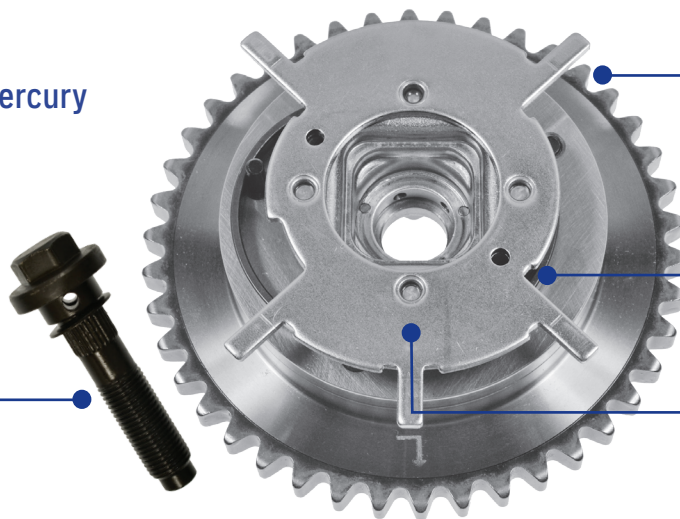
THE NEW BENCHMARK FOR VVT

We manufacture direct-fit OE replacements that feature design improvements to ensure proper performance, precise operation, and long service life.

ECP1100

Ford, Lincoln, Mercury
(2014-04)
VIO 3.4 Million

OE-style installation
bolts included for ease
of installation



Better performance in
timing phase response,
oil loss, and working life
of locking pin and overall
component

No friction between
sprocket and rotor

Re-designed
coil spring

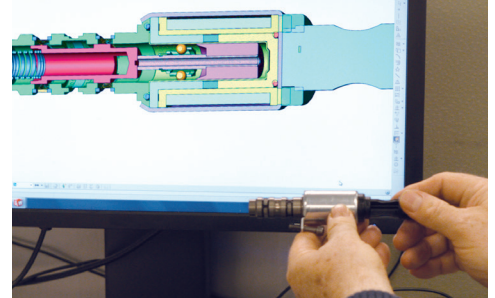
Source: SMP Testing Lab

WHAT'S IN YOUR BOX?™

HERE IS WHAT'S IN OURS

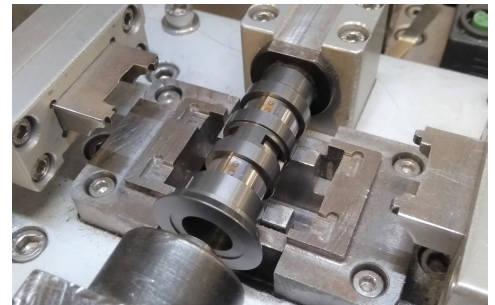
Research and Development

NAPA® Echlin® has 13 fully equipped design and development centers in North America and around the world. We remain committed to developing the best-performing VVT components available.



Precision Manufacturing

NAPA® Echlin® VVT components are designed and manufactured at our IATF 16949-certified facility in Bialystok, Poland, allowing us to maintain complete control over each VVT part.



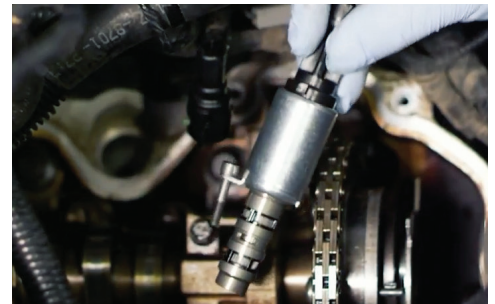
Testing and Performance Analysis

NAPA® Echlin®-manufactured VVT Solenoids and Sprockets undergo extensive measurement and life testing, plus a full spectrum of environmental analysis, to ensure that our parts perform correctly and withstand harsh underhood conditions.



On-Vehicle Validation

In addition to a full regimen of testing and analysis, NAPA® Echlin® VVT components undergo on-vehicle validation to ensure they integrate correctly and match designed performance in all conditions, and across the RPM range.



Sales Support

The industry's best and most recognized training programs, robust marketing, world-class category management, and a salesforce that's second to none, is why we're more than just a part in the box.

