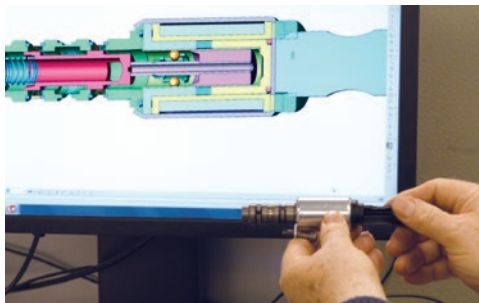


# WHAT'S IN YOUR BOX?™

## HERE IS WHAT'S IN OURS

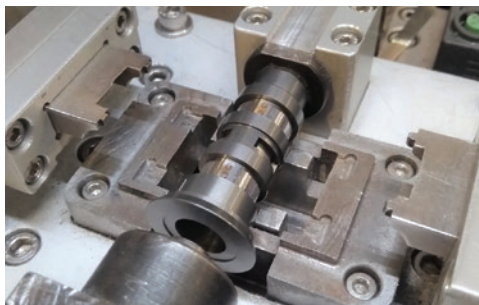
### Research and Development

NAPA® Echlin® has 15 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.



## A COMPLETE VVT PROGRAM

The NAPA® Echlin® VVT Program includes more than 600 VVT Solenoids, Sprockets, Kits, and related components, making it the most comprehensive VVT Program available in the aftermarket.

Our program includes:

- 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

The result is a complete program to restore the performance of your customers' vehicles using the highest quality and best-forming components available.



# VARIABLE VALVE TIMING PROGRAM



ECHLIN

LOOKS RIGHT. FITS RIGHT. PERFORMS RIGHT.



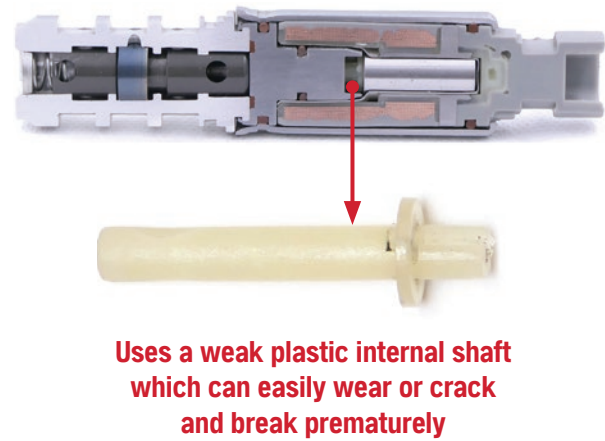


# WHEN CHOOSING A REPLACEMENT, YOU HAVE THREE CHOICES

## 1 A low-cost aftermarket part:

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

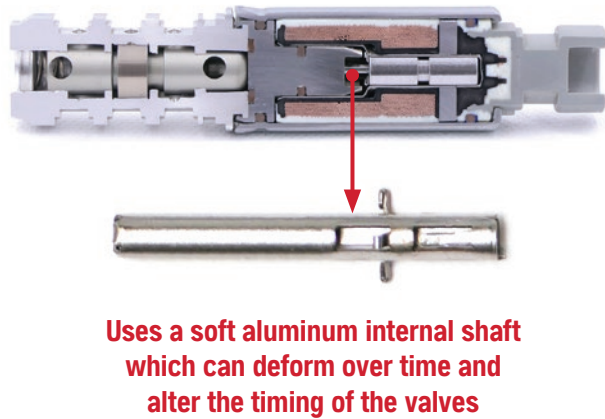
A failed VVT solenoid can cause catastrophic damage to the engine



## 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



## 3 A high-quality replacement from NAPA® Echlin®:

Includes design improvements for increased durability and new gaskets for easy installation

Tested on vehicles and in the lab for precise performance and long-term reliability



Source: SMP Testing Lab

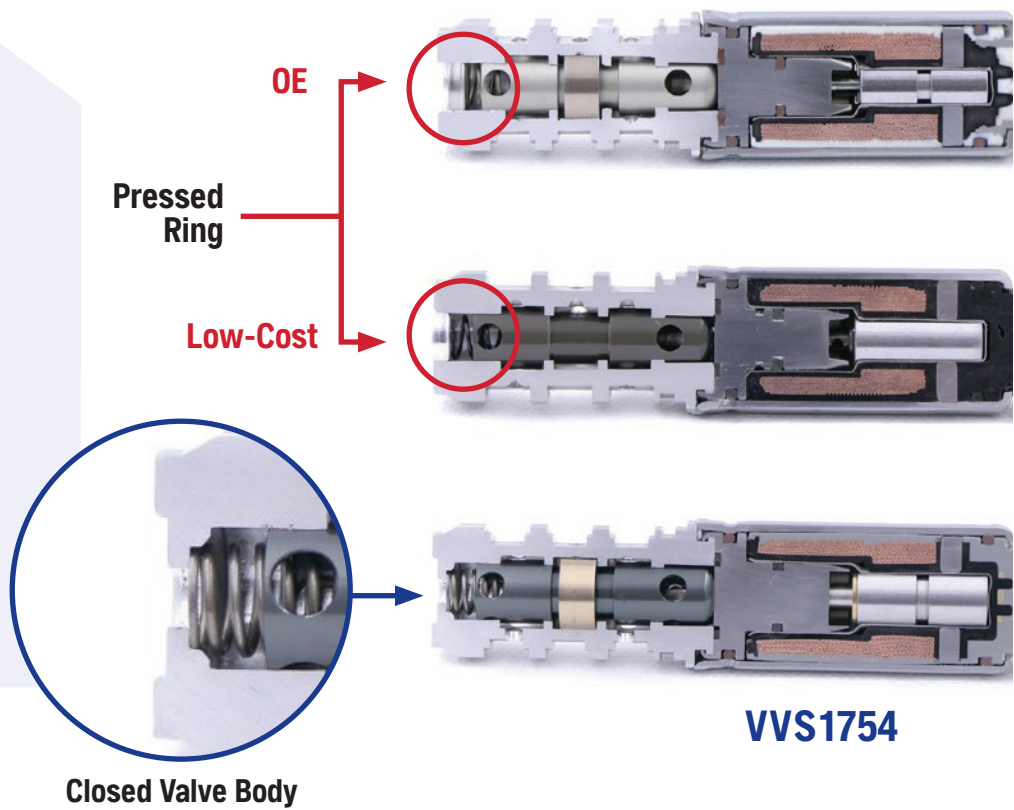
# WE IDENTIFY OE WEAK POINTS

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

## UPGRADED RING SUPPORT

OE and low-cost VVT solenoids use pressed rings for spring support that can fall apart over time.

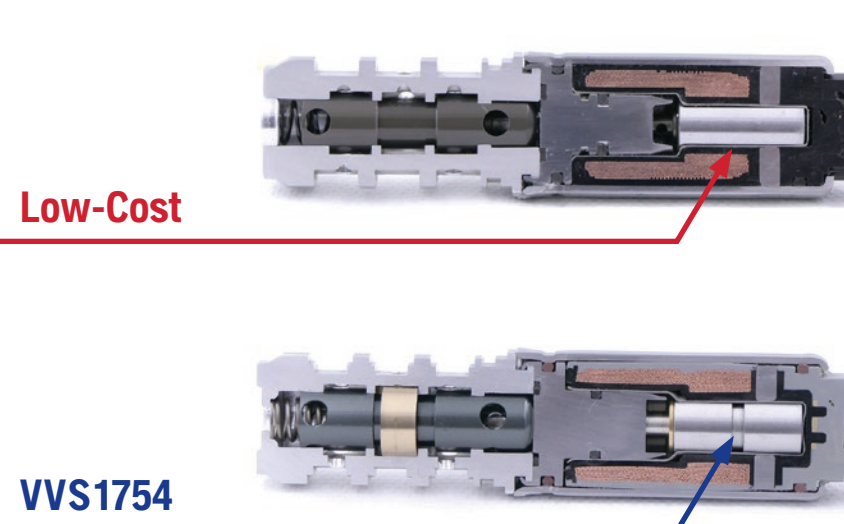
Our VVT Solenoids feature a closed valve body for spring support, with no chance of falling apart, even after millions of valve switches.



## IMPROVED LUBRICATION

Low-cost solenoids do not use grooves for lubrication which can result in slower valve switching, accelerated wear and solenoid failure.

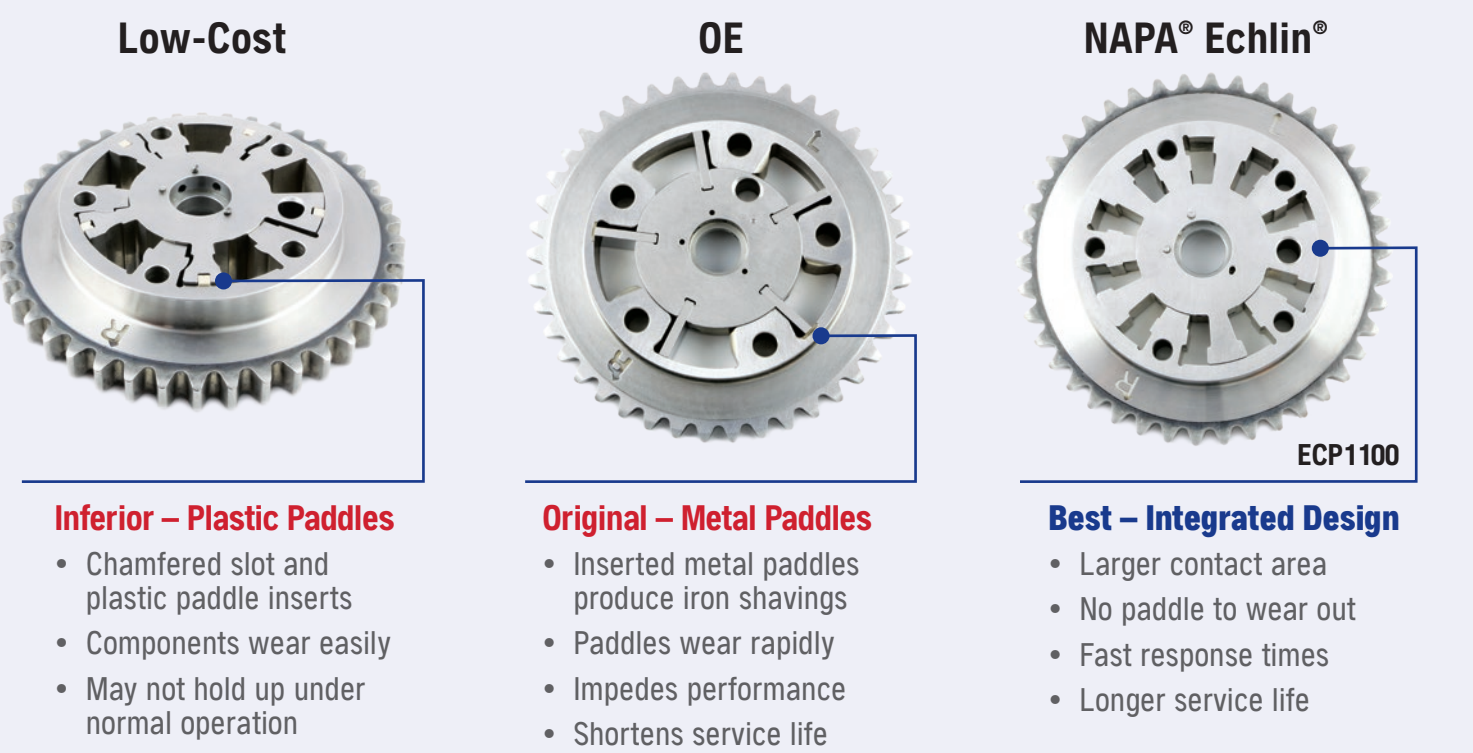
Our VVT Solenoids feature an added lubrication groove on the armature, allowing for faster valve switching, decreased wear, and increased service life.



Source: SMP Testing Lab

# WE MANUFACTURE IMPROVEMENTS

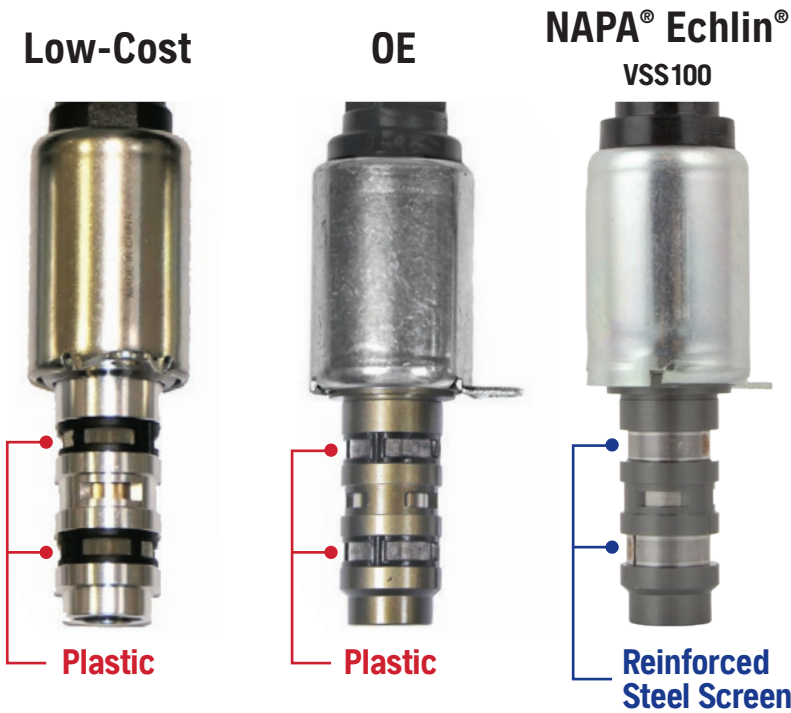
We engineer design improvements that result in durable components manufactured to operate under harsh underhood conditions.



## STAINLESS STEEL COMPONENTS

OE and low-cost VVT solenoids use plastic which often breaks and fails to hold the screen to the solenoid body.

Our VVT Solenoids feature an improved, welded stainless steel screen, ensuring reliable operation and an extended service life.



Source: SMP Testing Lab