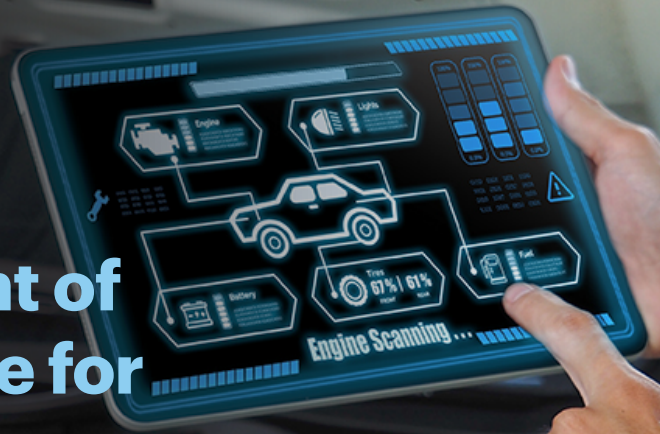


# End-to-End Development of Intelligent Thermal Valve for Automotive Applications



## The Client

A leading global Tier-1 automotive supplier focused on thermal and fluid control solutions.

Motherson Technology Services was approached by a leading automotive Tier-1 to design and develop a high-performance thermal valve solution, aimed at enhancing thermal management efficiency and ensuring seamless integration with modern vehicle control systems.

## Overview

To address the evolving demands of modern vehicles, Motherson Technology Services spearheaded the redesign and development of a high-performance automotive thermal valve. This solution was engineered to deliver superior temperature regulation, enhanced durability, and seamless integration with vehicle electronic control units via CAN/LIN communication protocols. The project emphasized precision control, robustness, and compliance with stringent automotive standards.



### Engagement

Reverse Engineering |  
Embedded Systems



### Tools

Automotive Communication  
protocols |  
Thermal Management Systems

## Expertise

The project leveraged expertise in various areas, including:



Embedded hardware and  
software development



Mechanical design with  
IP-rated enclosures



CAN/LIN protocol  
integration



System validation  
and testing

## The Solution

- Designed and developed a robust automotive thermal valve with IP65-rated enclosure for harsh environments
- Integrated CAN/LIN communication protocols for seamless vehicle system compatibility and diagnostics
- Developed embedded motor control software for precise thermal regulation and real-time actuation
- Completed full hardware, mechanical, and software validation through rigorous automotive-grade testing
- Delivered production-ready prototype with detailed documentation for deployment and post-launch support

## Benefits Delivered

The redesigned thermal valve provided the client with a competitive edge by improving vehicle performance and reliability, minimizing field failures, and supporting integration into modern vehicle platforms. This solution helped accelerate product rollout and reinforced the client's leadership in thermal systems innovation.