

## SUCCESS STORY

# PVplus Powers Automotive Test Facility's Central Hydraulic System

### CHALLENGE

A large automotive manufacturer had outgrown their existing test lab responsible for structural advanced life-cycle testing. When the time came to build a new, larger facility at 138,000 square feet, the automotive manufacturer was in search of a turnkey supplier to design and construct a large, central hydraulic system capable of providing stable hydraulic oil pressure at variable volumes. In comparison to the test lab's previous hydraulic system, which was built in the 80's, the automotive manufacturer was looking for a more efficient system to reduce energy waste in the form of heat.

Through a series of four unique concepts, Exotic Automation & Supply, a Parker Hydraulic Technology Center, presented their ideas to the automotive manufacturer for a new, state-of-the-art hydraulic system, along with supplemental break-out proposals for engineering support and options. Due to the scope and complexity of the project, it took ingenuity and flexibility from Exotic's design engineers to impress the end-user. The business, however, was ultimately awarded to Exotic with the following hydraulic system design parameters:

- Precise control of a large volume of fluid (over 18,000 Gallons)
- Flow variation up to 250 Gallons Per Minute (GPM) in as little as 200 Milliseconds (MS)
- 24/7/365 operation with 30 year plus life expectancy
- Stable pressure (3000 psi, +/- 100 psi) at variable volumes 0-2200 GPM
- Oil Cleanliness of ISO 12/10/7

### Market

Automotive

### Customer

Large Automotive Manufacturer

### Application

Automotive Test Lab

### Solution

Parker PVplus Series Pumps with Load Sensing Control and Electrical Unloading

### Results

- Lower Energy Usage
- Higher Output
- Greater Efficiency
- Customer Cost Savings
- Greater Safety
- One-of-a-kind system specific to application requirements
- 24/7/365 uptime and reliability

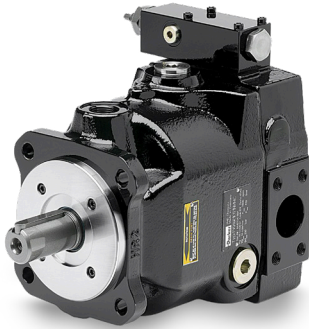


ENGINEERING YOUR SUCCESS.

In addition to the variable volume and flow design specs, the new hydraulic system had to be designed, commissioned, built, tested, and installed with some additional challenges, including:

- Construction into a tight, already-designed building footprint. The “pump room”, which is the heart of the central hydraulic system that also needed to be accessible for monitoring and maintenance
- Testing the system before the installation by simulating two miles of pipe in a test environment through a 15-gallon accumulator
- Coordinating the systems’ implementation with a new construction general contractor, other build trades, and the end-user to finish the system within the greater 138,000 square foot facility

PVplus Series  
Pump



## SOLUTION

To address the facility’s large central hydraulic system, Exotic’s and Parker’s Hydraulic Pump and Power Systems Division’s (HPS) engineers collaborated to design the main supply pump architecture to exceed the end-user’s stringent specifications.

The pump solution for the facility’s hydraulic system included pressure compensated pump technology with load sense control for 24/7/365 operation. Parker’s experience with other large system applications and load-sharing expertise, led to a recommendation of sixteen 360cc displacement Parker PVplus Series Pumps with Load Sensing Control and Electrical Unloading.

The PVplus Series was chosen in this specific application for a variety of key features and benefits, including its:

- Rigor in heavy-duty, industrial applications
- Ability to handle high pressure
- Robust performance
- Exceptionally long service life
- Modular design offering a wide range of customization options, such as, accurate, highly dynamic controls, which provide outstanding response characteristics - leading to increases in system productivity

## RESULT

Through Exotic and HPS’ engineering expertise, the end-customer system requirements for flow response, pressure compensation, and energy consumption were achieved. The end-customer received a turnkey, state-of-the-art, custom hydraulic solution tailored to their unique application. The hydraulic system included a significant amount of additional Parker content including filters, valves, accumulators, kleenvents, proportional valves and controller, hoses, and fluid connectors. In summary, the new hydraulic system achieved measurable benefits in a much smaller footprint than the previous system, including:

- Reduced energy waste in the form of heat
- Higher output with 4,800 horsepower in the supply pumps
- Greater overall efficiency with 2,200 GPM rated flow and 3,000 PSI working pressure
- Customer cost savings
- Increased safety through equipment-controlled stop buttons
- 24/7/365 uptime and reliability

Finally, Exotic’s adaptability, on-site project management, and coordination with general contractors and building trades resulted in another customer success.

