

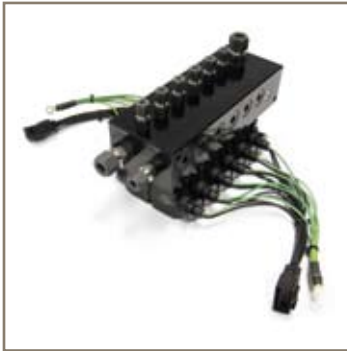
About Parker Energy Systems

Parker Energy Systems has a team of engineers dedicated to developing innovative fluidic management solutions for a wide range of industries and markets. Our team is able to design, test and manufacture modular subsystems to meet exacting customer requirements. Using our own low power, high precision piezo-actuated fluidic management components plus the global resources and full catalog of Parker Hannifin Corporation, we provide customers with high value solutions. For more information, visit <http://www.parkerenergysystems.com>.

About Parker Hannifin

With annual sales exceeding \$10 billion, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of commercial, mobile, industrial and aerospace markets. The company employs more than 57,000 people in 43 countries around the world. Parker has increased its annual dividends paid to shareholders for 51 consecutive years, among the top five longest-running dividend-increase records in the S&P 500 index.





Parker Energy Systems

Energy Efficient Technologies and
Integrated System Solutions

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.



Fuel Cell Systems



Piezo/Microfluidic



Mobile Systems

Energy Systems Capabilities

Parker Energy Systems specializes in complex fluidic system solutions and “difficult to solve” engineering problems encountered in a range of markets and applications.

We manufacture, assemble and test our products and systems on-site to ensure the highest level of quality to our customers.

Our experienced staff of engineers, manufacturing and assembly personnel focus on intense product and system development for our global customer base.

Whether developing a subsystem based on our own piezo-actuated fluid management products or using the rest of Parker Hannifin’s vast product catalog, we work with OEMs to develop turn-key solutions that are modular, low power and compact.

Using both 3D CAD software to create an initial design and FEA software to optimize product performance, we

are able to greatly reduce the product development timeline, especially when we combine these tools with our rapid prototyping and validation capabilities.

Fuel Cell Systems

- Supporting Polymer Electrolyte Membrane (PEM), High Temp PEM, and Solid Oxide Fuel Cell (SOFC) technologies
- Back up and prime power system development, as well as combined heat and power systems

Piezo/Microfluidic

- Miniature, low power fluid management solutions
- Ideally suited for point-of-use, power sensitive and portable applications



Mobile Systems

- Fuel Cell Vehicles, CNG Metro Buses, Hybrid Electric Vehicles, and Marine Fuel Systems
- Over three decades of automotive experience

Alternative Energy

- Solutions for turbines, solar thermal management, and wind power

Rapid Prototyping

- CNC machining and 3D printing capabilities
- Design concepts into functional prototypes in hours rather than days



From design to prototype, Parker creates accurate parts to customer specifications quickly and cost effectively

- ✓ Product and system development for OEMs worldwide
- ✓ Specializing in complex fluidic system solutions for a range of markets



Alternative Energy



Rapid Prototyping

Parker Energy Systems:

- Integrated Subsystem Design
- In-House Design & Analysis
- Rapid Prototyping
- Product Validation
- Dedicated Customer Service

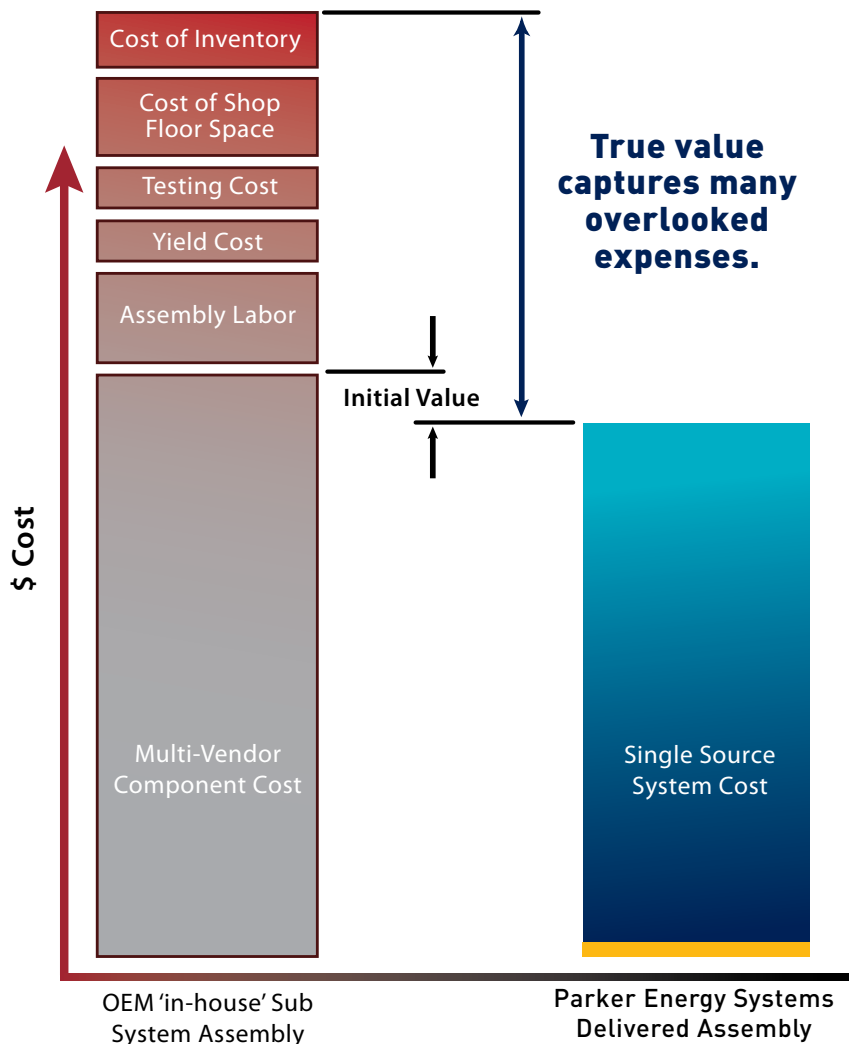
Energy Systems Value Proposition

When considering in-house sub-system development, OEMs often overlook hidden project costs. By using a single solution provider that can design, prototype, and manufacture, OEMs benefit from shortened design and production cycles and a consolidated Bill of Materials (BOM).

Our engineering experts collaborate with customers early in the development process to provide successful product integration. With Parker Energy Systems, you can stay focused on your core technology while lowering your technical risk and significantly decreasing project costs and time to market.



Successful system solutions begin with customer collaboration



- ✓ Experts in “difficult to solve” engineering problems
- ✓ Integrated, energy conserving solutions for pumping and valve technology, pressure regulation, electronic control, filtration, and more