

# Composite Sealing System Division News

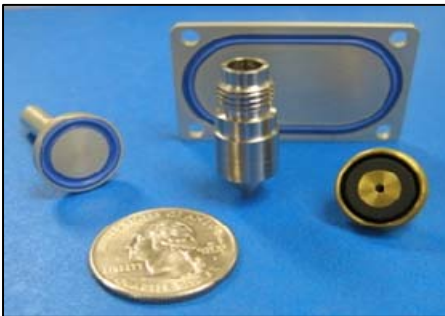
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## Dynamic Face Seals for Valve Service

Parker's Composite Sealing Systems Division engineers seals for use in valve applications. The Division has recently enjoyed a string of successes with valve applications in aerospace, automotive and semiconductor markets.

### What is a Valve?

A valve is a device that regulates the flow of a fluid by opening, closing, or partially obstructing a passageway.



Valves, of one type or another, control everything from the flow of fuel in a rocket to the flow of blood in your body. There are many different styles of valves, but all share common features, one being a movable structure that restricts the flow of the passing fluid. In one valve type, this structure takes the form of a disc at the end of a stem. This disc mates with an interior surface of the valve body (the seat) blocking the passage of fluid. The Composite Sealing Systems Division molds a resilient elastomeric seal into the face of the disc providing the necessary sealing function.

### Application Success

One particularly interesting application was a poppet valve seal designed and tested for use in a bypass valve on a major new military aircraft program. This valve is designed to open when backside pressure falls below specified limit.

The Parker designed Mark VII (single void) seal replaced a multi-component assembly with a single piece solution, reducing both

complexity and weight, while improving installation and maintenance issues.

### Design Highlights

- Passed 10,000 cycle pressure test cycling between 250 psig and 2375 psig using PJ8 at 300°F
- Compound: Parker compound VM835-75 fluorocarbon per AMS-R-83485, Type 1
- Retainer: 15-5PH stainless steel



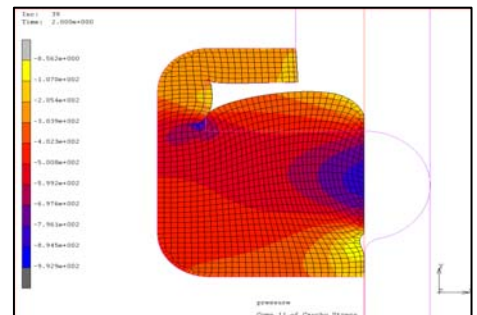
### Markets Served

Poppet valves are used in applications across a wide variety of industries and can be manufactured in a full range of sizes using any of our current compounds.

- Fuel valve on major new commercial transport aircraft
- Fuel delivery system in liquid natural as powered automobile
- Check valve on a semiconductor wafer processing machine
- Spring loaded valve used in a medical drug delivery system

### Simulating Performance

Complete finite element analysis (FEA) is performed during the design phase. Pictured below is the stress distribution in the Mark VII seal under compression.



### Contact Us

For more information, or to discuss a particular application, please contact the Composite Sealing Systems Division customer service department.

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