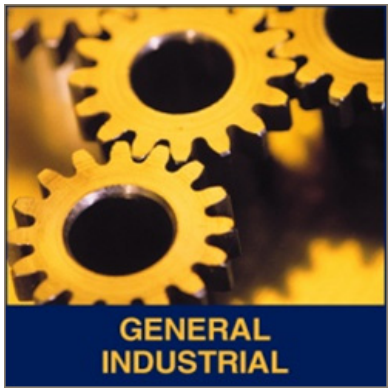
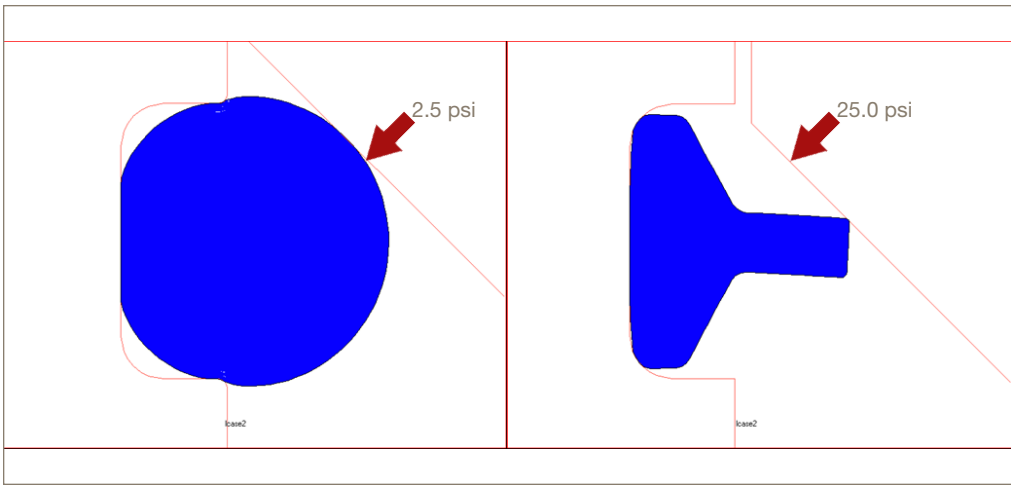
Check Valve Seal

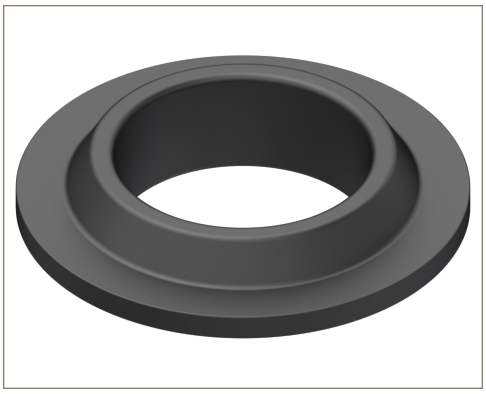
Engineered Solutions
Issue 4



Problem:

A small check valve used a traditional seal mounted in a piston groove which sealed against a chamfer. The piston was driven by an ultra-light spring which produced a force less than a hundredth of a pound in the closed position. Even using a soft 40 durometer elastomer, the spring could only generate 0.0002 inches, or 5 microns (0.005 millimeters), of compression. As a result, tiny imperfections on the sealing surfaces or misalignment of the piston resulted in leakage.





Solution:

Parker Engineered Seals Division designed a custom T-Seal to replace the traditional seal. Molded in a much stiffer 65 durometer compound, the new seal deflected 7.5 times further than the traditional seal using the same spring. Seal pressure at the seal/chamfer interface was increased 10 times. The increased seal pressure and flexibility of the new seal allowed the check valve to function properly in the application. This design resolved the customer's leakage problem and provided an on-time production launch.

Applications: Using non-linear Finite Element Analysis (FEA), our product engineers can analyze your application to identify opportunities and offer custom solutions that are cost-effective.

Parker Hannifin Corporation
Engineered Seals Division
501 South Sycamore Street
Syracuse, IN 46567

phone 574 528 9400
fax 574 528 9640

www.parker.com/esd

Contact Parker Engineered Seals Division and ask for a product engineer to review your application and see what opportunities are waiting to be discovered!

ENGINEERING YOUR SUCCESS.