**Application:** Automated Pill Dispenser

**Component:** Seal Coupler

**Design Requirements:**
An automated pill dispensing system manufacturer required a unique seal coupler design to enhance pill counting and dispensing functions. Minnesota Rubber and Plastics provided a new lip seal design solving the initial problem of seal alignment with a more precise-fitting lip configuration at the seal end for precise pneumatic actuation of the system. In addition, it provided an integrated coupler assembly that eliminated maintenance problems.

**Design Approach:**
Minnesota Rubber and Plastics' new lip seal design was precision molded from a specially engineered elastomer material. It provided components with greatly improved wear resistance and a leak-proof connection to the high-pressure system. The company also designed a complex spring-loaded assembly that locks the pneumatic connections together.

**Related Benefits:**
The overall seal coupler has an upper and lower housing molded from a nylon material that is ultrasonically welded together. Within this housing, a spring is centered on a retainer at one end and a poppet core on the other. This poppet core, under tension from the spring, locks into the special lip seal molded from a very durable, high performance proprietary elastomer material. Minnesota Rubber and Plastics brought its high level of experience in material formulations to provide a complete solution, including program management for the customer. This included design and prototype work, large volume, automated manufacturing and 100 percent part verification for quality in all cell components.

Minnesota Rubber and Plastics operates an ISO 13485:2003 certified quality management system and manufactures a full range of medical and pharmaceutical sealing devices in Class 10,000 and Class 100,000 clean rooms. Providing design assistance and prototype development, the company brings over 60 years experience in custom materials engineering and in difficult sealing applications. This experience, plus its unique ability to offer both rubber and plastic combination components, results in greater engineering design and production efficiencies, thereby reducing development time, costs and decreasing time to market.