

**APPLICATION SOLUTION: Fluid Injection**



**Product Family:** Electric  
**Product Used:** RSA12 Electric Rod Actuators  
**Product Type:** Modified Standard

**Application Requirements:**  
**Stroke:** 154.9 mm (6.1")  
**Speed:** >25.4 mm/sec (>1.0"/sec)  
**Thrust:** 448 N (100 lbf)

**Application Description:**

Fluid injection for a medical process.

**Challenge:**

A manufacturer of a fluid injection machine required very precise, consistent movement (speed & thrust) to meter injection of fluid. Additionally, because this machine was installed and operated in medical facilities, it required a very compact footprint without sacrificing performance.

**Tolomatic Solution:**

To achieve the required performance and reduce the overall footprint a modified RSA12 with a ball screw and RP (Reverse Parallel) motor mount was chosen. By removing the cover from the timing belt/pulley assembly the footprint was reduced. The length of the actuator was further reduced by modifying the ends of the actuator, moving the position of the switches while still keeping end of travel switches. The customer's chosen 23 frame stepper motor gave good positioning while managing cost. The finished RSA12 actuator was also outfitted with a linear encoder to increase the overall resolution and position feedback of the system.

**Customer Benefit:**

- Modified RSA met small footprint requirements allowing for a compact machine design.
- Complete actuator design allowed the customer to control a process with precision that was previously not available.
- Use of industrial grade equipment provides the reliability, precision and repeatability to meet the customer's performance requirements.