

June 2015

Innovative Hydraulic Solution for Testing Application

Introduction

Resistive torque isn't just fun to say – it's a necessary element in many industrial testing applications.

A customer contacted us needing a resistive torque range of 2,000 to 20,000 lb-in for an important application: product life-cycle testing for electric valve actuators used in the gas industry.

To deliver a suitable solution, we had to deploy our industrial automation and testing expertise – plus a bit of out-of-the-box thinking.

The Challenge

This customer is an organization responsible for developing standards that help influence safety, product performance and the environment. The customer wanted to perform product life-cycle testing on electric valve actuators used in the gas industry.

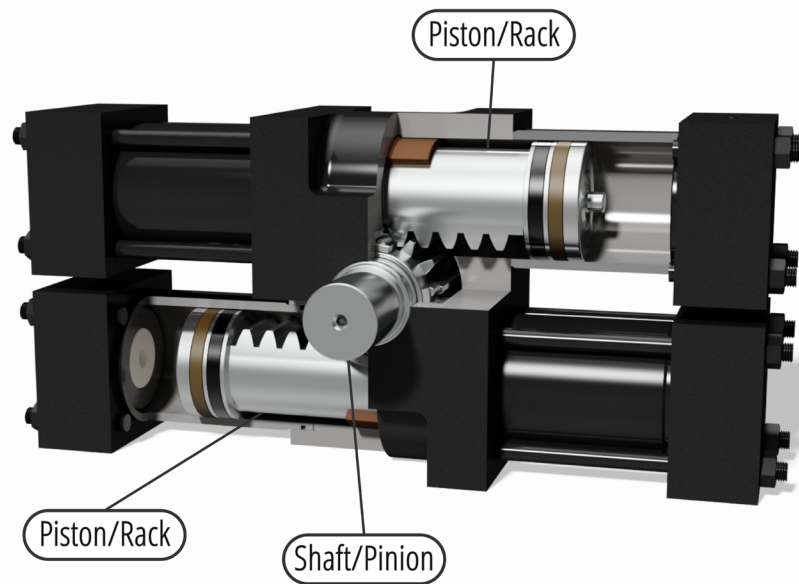
They needed a simple, reliable and relatively low-cost method of providing a resistive torque to the electric valve actuators during cycling, with a resistive torque range of 2,000-20,000 lb-in. The maximum cycle rate for the electric valve actuators would be a 90 degree rotation in 20 seconds.

The Solution

For past projects, we have used magnetic particle brakes to apply the resistive torque. This application, however, required torque levels much greater than the typical magnetic particle brake can provide. To satisfy the high torque requirements while keeping costs to a minimum, our team designed and delivered a solution that utilized a hydraulic rotary actuator in an unconventional way.

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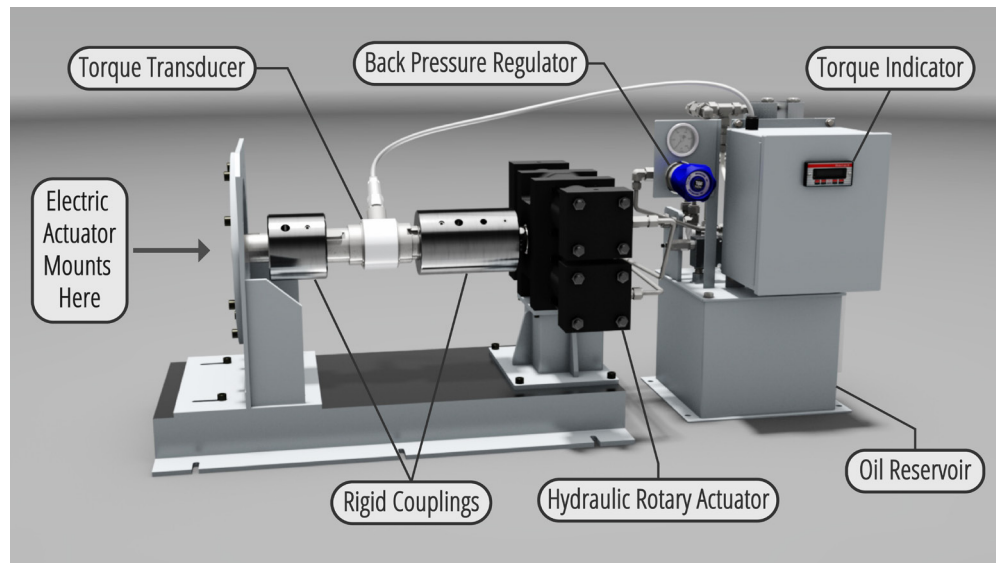
The hydraulic rotary actuator is a device that transforms hydraulic power (pressure and flow) into rotational, mechanical power (torque and speed). Typically, hydraulic power is applied to one or more linear moving pistons and the linear motion of the pistons is converted to rotational, mechanical power via a rack and pinion.



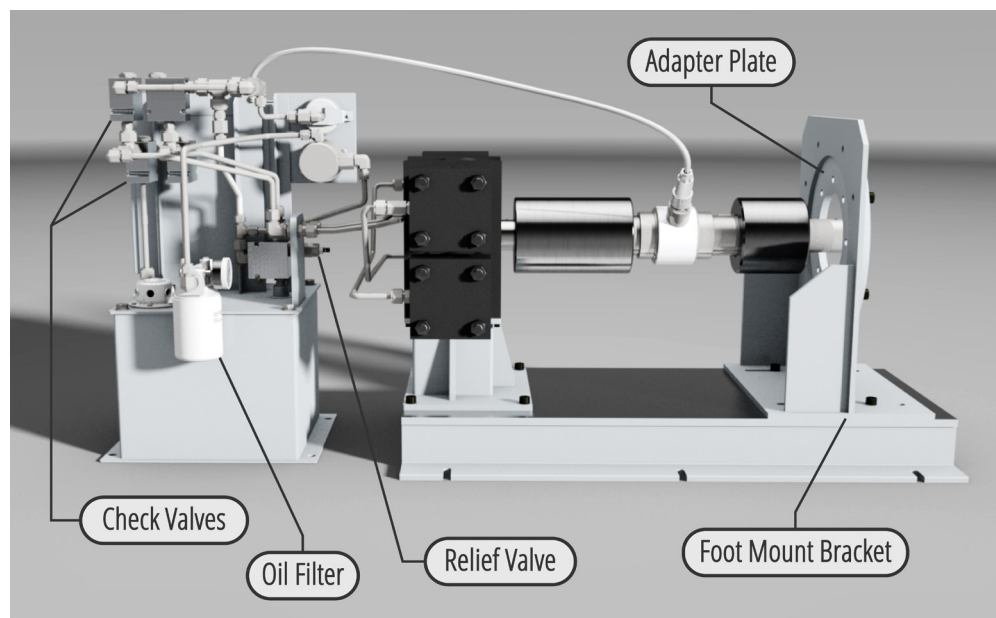
The main components of the system are:

- Hydraulic rotary actuator
- Back pressure regulator
- Torque sensor with readout
- Custom mounting brackets and couplings
- Oil reservoir
- Oil filter
- Check valves

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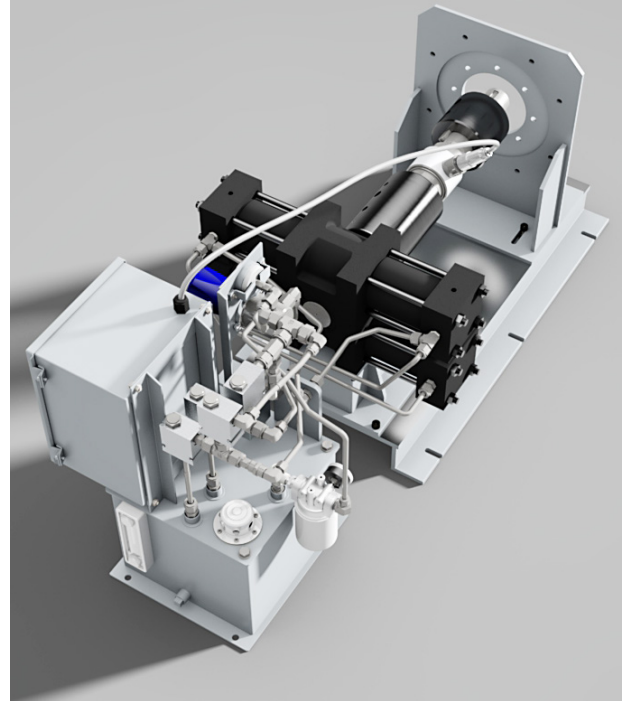
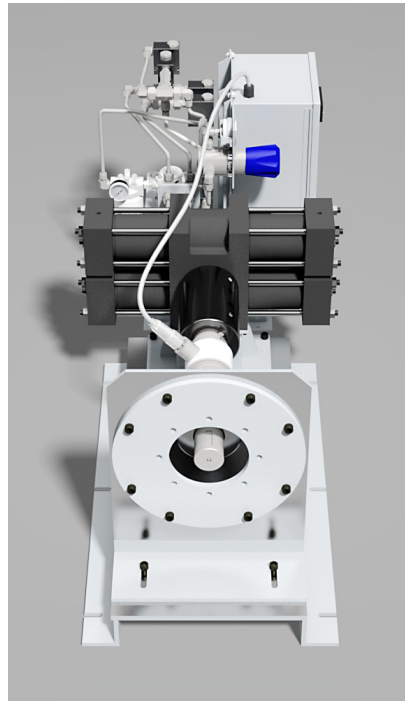
The shaft of the electric valve actuator is coupled to one end of the torque sensor. The other end of the torque sensor is coupled to the shaft of the hydraulic rotary actuator. The electric valve actuator and the hydraulic rotary actuator are mounted to custom brackets.



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In this testing application, the hydraulic rotary actuator is utilized in an unconventional way. Instead of using fluid power to drive the hydraulic rotary actuator, the electric valve actuator provides the rotational, motive force which the rotary actuator must counter. In other words, the hydraulic rotary actuator is rotated by the electric valve actuator.

The 2,000 to 20,000 lb-in of resistive torque to the electric valve actuator is created by building up back pressure in the hydraulic rotary actuator.



How Can We Help You?

To request a quote or schedule a complimentary solutions consultation, just drop us a note using our [simple contact form](#). We look forward to hearing from you.

About the Stanley M. Proctor Company

Since 1955, the Stanley M. Proctor Company has specialized in custom-engineered industrial automation solutions and the distribution of pneumatic, hydraulic and electric hydraulic plant automation products. We pride ourselves on consistently exceeding customer expectations and steadily building our reputation for delivering outstanding quality and service.