



# CHEMICAL PROCESSING TURBINE GOVERNOR





## Chemical Processing Turbine Governor

Steam turbines are found in almost any processing plant or power generation facility. Used as the driver for other rotating equipment, steam turbines convert thermal energy to rotational energy – ultimately controlling the input speed or power of a driven device. Any turbine downtime negatively impacts the overall plant process. Therefore, reliable and repeatable control is imperative for efficient plant process and maximum profitability.

A chemical plant in Ohio recently experienced nuisance downtime from process inconsistencies and required improvements to their BDO (butanediol) compressor's steam turbine governor control valve actuation system. Their system consisted of a simplistic hydraulic power piston actuator, which was challenging to retrofit with LVDT (Linear Variable Differential Transformer) position feedback. Modulating the power piston's hydraulic relay required its' driver to make thousands of tiny reversals every hour – adding up to tens of millions of reversals each year.

*“This old actuator should be preemptively replaced at least yearly to avoid causing shutdowns.”  
– Plant Process Control Specialist*

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Thanks to REXA's Electraulic Actuators, this plant's concerns are a thing of the past! Our actuators require no oil filters or oil-based maintenance - making them highly reliable. Regular maintenance intervals for our actuators on steam turbine systems are not typically required until after 7-10 years of service, ensuring long-lasting repeatability. High performance allows for control at +/- 1 RPM, allowing fast synchronization and exceptional load control.

Once installed, our customer noticed immediate improvement on the turbine's speed control and RPM swing. With REXA self-contained actuators, the customer was able to eliminate constant repair and replacement, the need for an external oil supply requiring scheduled maintenance, and many other peripherals within the governor control valve actuator loop such as the LVDT feedback, positioning modules, etc.



*"The installation process was smooth and trouble-free, as we didn't need to revise our standards or training. Having witnessed the REXA actuator in action for a few months now, I believe we would have potentially averted an unplanned process interruption or two had we replaced the old system when we first had the opportunity. Modernizing a 20+ year-old steam turbine is a lot easier with just one cohesive package, like REXA's. The hysteresis with prior loose linkage is completely gone."*

*– Plant Process Control Specialist*



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