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SUPERHEATER INJECTOR (IS) VALVE

TECHNICAL DESCRIPTION OF APPLICATION

The I.S. or superheater injection valve is used to maintain constant steam temperature through the final superheater and into the high pressure turbine. This valve/actuator is required to throttle continuously during normal operations. Operating temperatures can range from 650 to 850 degrees F and pressure exceeds 4000 psi. Depending upon valve size, valve style and plant capacity, the required actuator thrust is between 1000 and 12000 lbs. A number of I.S. valves are installed in parallel. If one fails, the load is distributed to the others so that there is no interruption to plant operation.

TYPICAL ACTUATOR PROBLEMS

A. Pneumatic Actuators

Because of the high temperature, valves are normally supplied with various configurations of graphite packing. Many of these valves have large stem diameters. This results in excessive packing friction. Pneumatic actuators will exhibit high deadband and poor control in such an application. This service demands precise, accurate control of steam temperature to prevent thermal transient within the turbine. Also, fail in place is a typical requirement which is not a reliable option on pneumatic actuators.

B. Electric Actuators

By design, electromechanical actuators are not suited for continuous duty service; Motor and contactors will burnout and gears wear. The very precise control will only exacerbate the need for high maintenance.

MAJOR ADVANTAGES OF REXA

a. Continuous operation - 100% duty cycle
b. Maintenance - low
c. Unit is sealed - no ingress of steam or condensate into the internals
d. High resolution, low deadband - regardless of packing friction.