Diakont actuators help turbine OEMs and refurbishing companies all over the world to solve any kind of tasks at steam, gas and hydro turbines, starting from normal one channel electro mechanical actuators, up to full redundant EMAs with fail-safe spring mechanism and explosion protection.
Advantages and Benefits
Replacing electrohydraulic and hydraulic actuators in steam turbine control systems with Diakont electromechanical actuators delivers safety, maintenance and durability advantages:
1. Improved safety and reliability with a fail-safe spring mechanism and redundant motor options
2. No oil issues: fully electric servo actuator design has no leakages from pumps or hoses
3. Low maintenance with a long service life
4. High durability in severe environment conditions
5. Smart digital control unit provides interface for simple integration and troubleshooting

Oil Free Turbine Control System
Turbine control systems based on electric servo actuators do not require any oil, hoses or pumps associated with hydraulic systems. This greatly reduces maintenance and operation costs. Additionally, this reduces fire hazards (especially for valves mounted on top of turbines), consequently reducing insurance prices.

Peerless Performance in Steam Turbine Applications
Diakont has successfully upgraded dozens of steam turbine control systems that incorporated single-channel or dual-redundant EMAs, leading to impressive results. Application of Diakont electric actuators has been shown to:
- increase accuracy and control of steam pressure, reducing throttle pulsing;
- decrease turbine wear through reduction of vibration level;
- improves response time, which reduces range of pressure variations, allowing turbine to be operated on higher steam pressure levels;
- reduce turbine downtime due to automatic start-up & mechanical safety diagnostics.

Common Applications
- Direct steam valve control
- Pilot valve actuation
- Feed-water pump control

Fail-Safe Protection, Guaranteed
The fail-safe spring mechanism extends the actuator output rod to a safe position at an extremely high speed in the event of trip command or power cutoff. The shock absorbers are mounted in the fail-safe mechanism flange to minimize the influence of shock load on the cone seating surface of the valve.
As an option, Diakont electric servo actuators deliver additional reliability with redundant motors and redundant feedback sensors.

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Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pilot valve control actuator</th>
<th>Steam valve actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated force</td>
<td>675 - 2250 lbf (3 - 10 kN)</td>
<td>4 500 lbf (20 kN)</td>
</tr>
<tr>
<td>Stroke</td>
<td>2 in (75 mm)</td>
<td>Up to 5.9 in (Up to 150 mm)</td>
</tr>
<tr>
<td>Motion time for full stroke (from motor)</td>
<td>0.3 - 0.5 sec</td>
<td>0.9 - 3 sec</td>
</tr>
<tr>
<td>Motion time for full stroke (drom spring)</td>
<td>Under request</td>
<td>0.3 - 0.4 sec</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td>every 2 - 4 years</td>
</tr>
<tr>
<td>Lifetime</td>
<td></td>
<td>20 years</td>
</tr>
<tr>
<td>Protection degree</td>
<td></td>
<td>IP65</td>
</tr>
<tr>
<td>Hazardous location standard</td>
<td></td>
<td>Optional: ATEX Zone 2</td>
</tr>
<tr>
<td>Mounting options</td>
<td>Trunnion, rear clevis, front flange, custom mounting</td>
<td></td>
</tr>
<tr>
<td>Fail safe options</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fail-safe spring and internal electromagnetic clutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Redundant motor and feedback sensor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Manual over-ride hand wheel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Brake</td>
<td></td>
</tr>
</tbody>
</table>

Turbine Control Systems

In addition to developing rugged electric actuators for steam valve applications, Diakont has installed and commissioned drive control units and entire control systems for numerous plants. Diakont provides both products and services for demanding power generation projects. Find out more by contacting an office near you.