

Electro-hydraulic control system Improve your steam turbine reliability

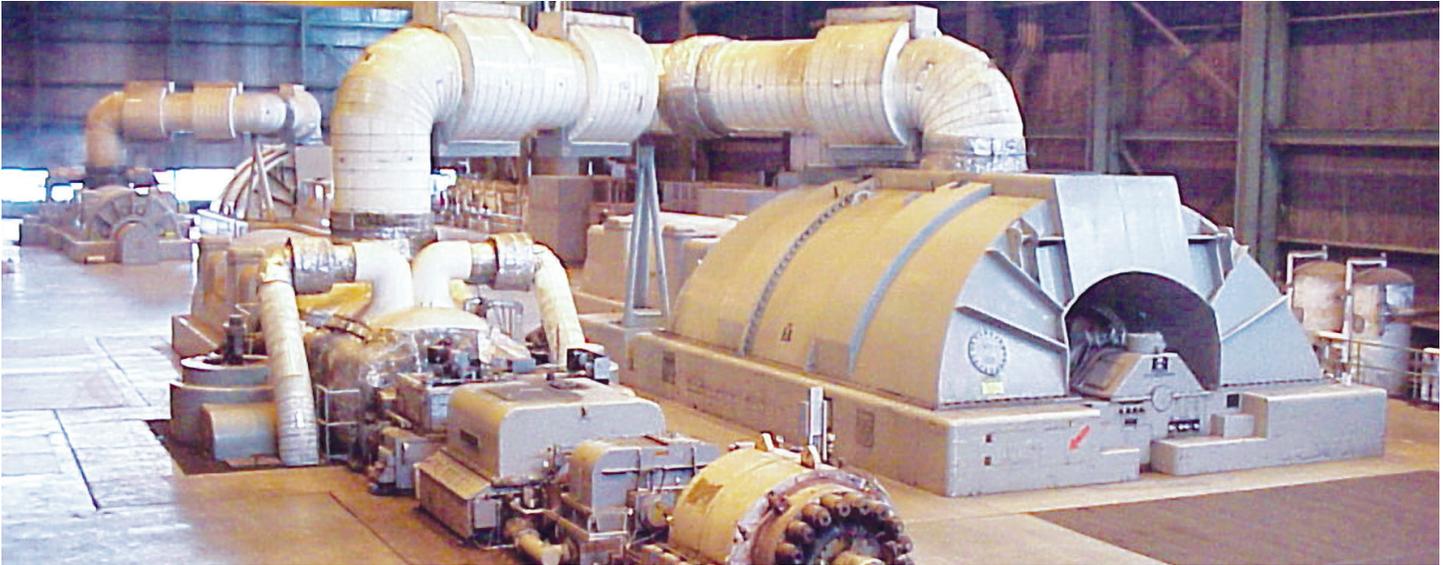


ABB offers comprehensive maintenance offerings and protection solutions for your steam turbine electro-hydraulic control (EHC) system

ABB's hydraulic repair and reconditioning service specializes in bringing equipment back to its original performance, helping to prevent costly failures and improving plant safety.

Benefits

- Increased availability
- Enhanced performance
- Safer, cleaner working environment

Comprehensive maintenance program

ABB's hydraulic system services help eliminate electro-hydraulic control system problems due to worn and damaged components. Equipment evaluation and planning enables fast and comprehensive maintenance during scheduled outages.

Services include:

- On-site component wear inspection
- Parts rebuild and/or replacement
- A complete annual maintenance program included in an ABB service contract
- Comprehensive system assessment

ABB understands the critical tolerances required for actuator assemblies, servo valves, pumping systems, and the repair and reconditioning services required to keep plants safe and on-line.

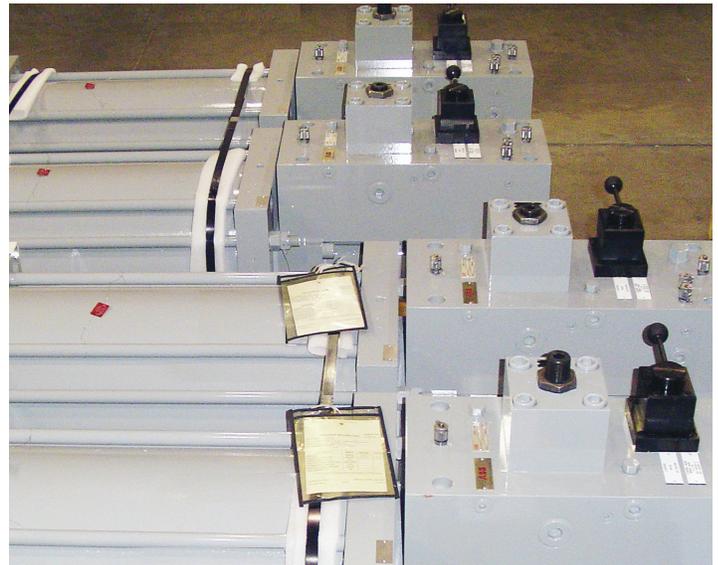
A regular maintenance schedule for steam turbine valve actuator seal replacement and the replacement of wear components prevents downtime. Maintenance activities eliminate hazards such as:

- Seal failures that can leave hazardous EHC fluid on floors and walkways
- Leaks around steam lines that could result in fires, erratic operation of valve actuators
- Potential injury to personnel

History has shown that steam turbine valve actuators should be removed and reconditioned every six to eight years, depending on their type and application. ABB provides a comprehensive outage maintenance plan to efficiently manage the entire repair and reconditioning process.



Before



After

On-site services

ABB hydraulic system services also include a complete range of repair and reconditioning services, including:

- EHC system inspection and assessment
- Hydraulic system recommissioning and calibration
- System flush
- Hydraulic power unit (HPU) service

Repair/replacement services

Prior to a scheduled outage, ABB performs a detailed audit on all of the plant's hydraulic equipment and generates a proposal for review. Upon customer acceptance, equipment is disassembled, cleaned, rebuilt and tested as needed during the scheduled outage. Worn parts are replaced using plant or ABB inventory. When an actuator assembly requires repair, it is sent to ABB's hydraulic repair facility. Upon arrival at our repair facility, we will repair and recondition the assemblies.

Actuator assembly reconditioning

New components will be installed while the servo valves are inspected and repaired. The cylinders are inspected and all "wear" parts are replaced, including piston, piston rod, piston rings, bearings, cylinder tube and all soft seals. If additional work is required due to unforeseen damage ABB will contact the customer with the required additional work scope and pricing. After reassembly, a service report is generated and forwarded to the customer. The reconditioned cylinders will be assembled to their reconditioned manifold(s) and tested as an assembly. Once proven to be in 100% working order, the assemblies are shipped directly to the site for installation under the supervision of ABB's hydraulic expert.

Additional equipment that can be serviced on-site

- Hydraulic trip manifolds/trip blocks
- Hydraulic accumulator assemblies
- Hydraulic power units (HPU)

ABB will work with plant personnel or with ABB contractors to replace all hydraulic system solenoid valves. This includes all valves on trip manifolds, testing valves on open/closed actuators and any auxiliary manifold valves.

Accumulator bladders and seals will be replaced both on accumulator stands and at the hydraulic power unit.



HPU services include:

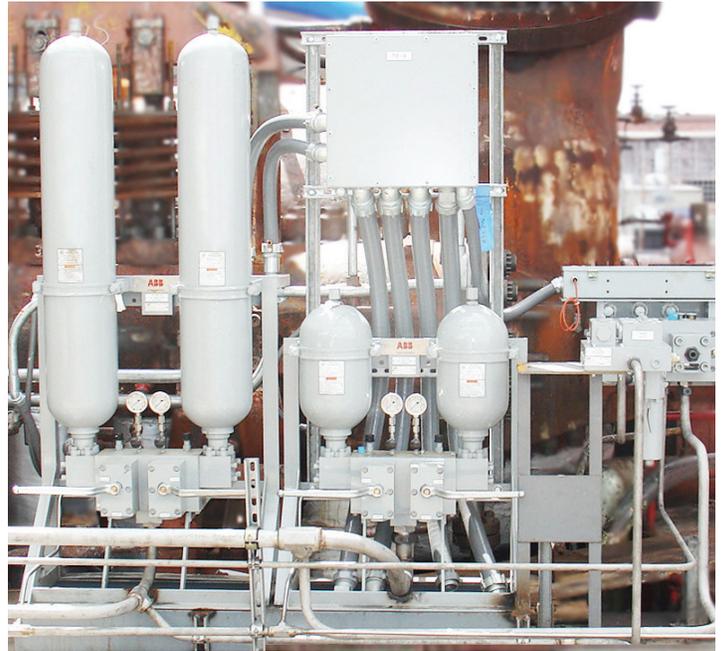
- Reservoir inspection
- Clean reservoir and magnets
- Grease motors
- Inspect all HPU valves and fittings for leaks
- Replace desiccant breather element
- Adjust pressure setting for all relief valves and pump compensators
- Work with plant technicians to calibrate all switches and transmitters
- Change all HPU filter elements
- Replace HPU hydraulic fluid with new fluid (supply and disposal of old fluid handled by customer)

After completion of all specialty services, a full system flush will be performed. The system will then be re-commissioned. All affected hydraulic equipment will be operationally verified and actuators calibrated.

Installation services

ABB has partnered with industry recognized contractors and has working relationships with most major AE firms to provide a full complement of start-up and installation services. These services include on-site supervision and technical support of customer or third party manpower resources, complete turnkey responsibility for installation and commissioning and many other related on-site services including system audits, vibration analysis, training, and maintenance services.

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