

Life Is On

Schneider
Electric

Mechanical retrofit

Modernization solutions

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Upgrading turbomachinery is simple to plan and execute. We can phase it to work with your schedule and your budget. Consider maximizing productivity and maintaining your critical TMC assets with our modernization solutions.

Turbomachinery upgrade and mechanical retrofit solutions

High-performance cars have more in common with turbomachinery controls than you might think.

High-performance race cars ...

Have you watched a car race lately? The noise of the engines, the fans screaming, and the tires squealing as the brightly colored cars zoom around the track is heart pounding. Cars at this level are engineered with the best control systems and machinery available — their computers can process at breakneck speed and their handling capacity is unparalleled.

After a number of laps around the track, each of these lightning-fast cars pulls over for a tire change. Seconds tick by as trained crews remove worn tires and replace them with brand new treads, and the cars peel out again. Every second in a race is worth money and, yet, the drivers take time to change tires. Have you seen what happens to a car when its tires fail? Even the best control system can't help a car with worn tires. That's why the drivers invest time changing out worn tires for new ones — it can make all the difference in terms of who wins and loses.

... and turbomachinery controls

In the world of turbomachinery, we also use expensive equipment and top-of-the-line control systems. A high-quality system is designed to run for decades, but it needs tuneups and repair every once in a while. Like laps around the race track, years take a toll on machinery. An advanced turbine control system from the last century is bound to come up short in terms of efficiency and capability when compared with today's cutting-edge systems.

Although a process in a plant may still function with worn equipment, it's less efficient and runs greater safety risks. At some point, aging equipment will fail and the race, in essence, will be lost. How much money does it cost when a plant goes down for a day? For a week? What if even a fraction of that money had been invested over time to modernize equipment and prevent a spurious trip?

Tap into experience for best results

With an investment of this sort, it's important to make sure you're collaborating with highly experienced professionals. Schneider Electric has been delivering excellent mechanical retrofit upgrades for four decades, helping plants extend the life of critical turbomachinery equipment and improve overall capacity. By simplifying ongoing maintenance and offering knowledgeable support, we help plants overcome the aches and pains associated with obsolete equipment or controls.

Investing in efficiency, safety, and performance



Nowadays, plants are looking for longer periods of time between turnarounds — they want to get the process running and keep it running for a decade or more.

To do that, they need to be able to perform repairs and tests online. They need robust control and mechanical systems to avoid spurious trips. And they need enhanced visualization, diagnostics, and simulation capabilities to improve performance.

Phased approach to modernization

Most plants can't simply replace their entire turbomachinery platform to keep up with the times because the costs would be astronomical. Often, to bridge the gap and make aging machinery as efficient as possible, plants schedule smaller changes for key components.

This sort of mechanical retrofit process enables plants to modernize the turbomachinery — increasing efficiency and safety — without breaking the budget.

Features of an optimal retrofit

An optimal retrofit has no mechanical linkage, minimal electronics in the field, redundant/TMR servo valves, and online diagnostics with

serviceability. We use standard, off-the-shelf components to shorten lead times and reduce costs for spares (and spare quantity required). In modernizing protective systems, we eliminate mystery boxes, mechanical bolts, and auto-stop oil circuits.

We ensure 2-out-of-3 voting for all trip inputs, and provide electronic overspeed protection and redundant trip blocks. Our redundant 2oo2 trip block offers online testing and repair, no single point of failure, manifold mounting for easy installation and repair, and full instrumentation for automatic testing with continuous diagnostics. Our solutions enable online monitoring and testing of all protective functions.

Expertise on your team

At Schneider Electric, we have been in the field for a long time. Our experts have earned a reputation for quality work and excellent service, especially in retrofit and modernization projects. We can help extend the life of your critical turbomachinery and improve overall performance.

Investing in efficiency, safety, and performance



Mechanical retrofit solutions

We offer several solutions that integrate to modernize the entire turbomachinery train over time. For instance, we can tailor the following retrofit solutions to suit a variety of plant configurations and installations:

- High- and low-pressure hydraulic actuators, pneumatic actuators
- 2oo3 pneumatic trip block assemblies
- LVDT brackets — redundant and triple redundant — for valve position feedback and control
- Speed gears, speed probes, and brackets
- Thrust probes and brackets
- Hydraulic power units for high- or low-pressure applications
- Redundant 2oo2 trip block assemblies — fault-tolerant and online serviceable
- Custom servo replacement and turbine redundant actuator control assembly (TRAC): fault-tolerant, online replaceable, off-the-shelf components for two or three servo solutions

Reliable support and services

Supporting you from start to finish, we offer installation services for all of these solutions. We also provide design, testing, documentation, detailed demolition plans, and management of contractors on-site.

Prioritizing your investment

Modernizing turbomachinery is simple to plan and schedule. You can do it in phases and over time, working with your budget and plant schedule.

We will help you prioritize what your plant needs in order to improve compliance with new regulations and enhance safety. Each retrofit investment will enhance performance and productivity, paying for itself time and again.

What's more, we offer lifetime support for every one of our solutions, connecting you with local and global experts for quick response.

Contact us

We invite you to reach out to our qualified sales teams and engineers to discuss your project. Visit our new website at se.com/tmc or call us directly at 508-549-2424. We look forward to working with you in overcoming obsolescence and improving efficiency, safety, and productivity.

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