

# ***Elliott Engineered Life Extension for Rotating Equipment***

Elliott maximizes your long-term investment in rotating equipment, whether manufactured by Elliott or any other OEM.

Even well maintained turbomachinery in good operating condition can be made obsolete by advances in technology, design, materials or plant capacity. Replacing this equipment with new machines is costly and requires long lead-times.

Through rerates, upgrades or reapplications Elliott can extend the life of centrifugal compressors and steam turbines from any OEM, quickly and affordably, in your plant or in our global network of service shops. Drawing upon 100 years of engineering, manufacturing and service experience, Elliott modernizes rotating equipment anywhere in the world to improve operating efficiency, reduce operating costs and support increased plant capacity.

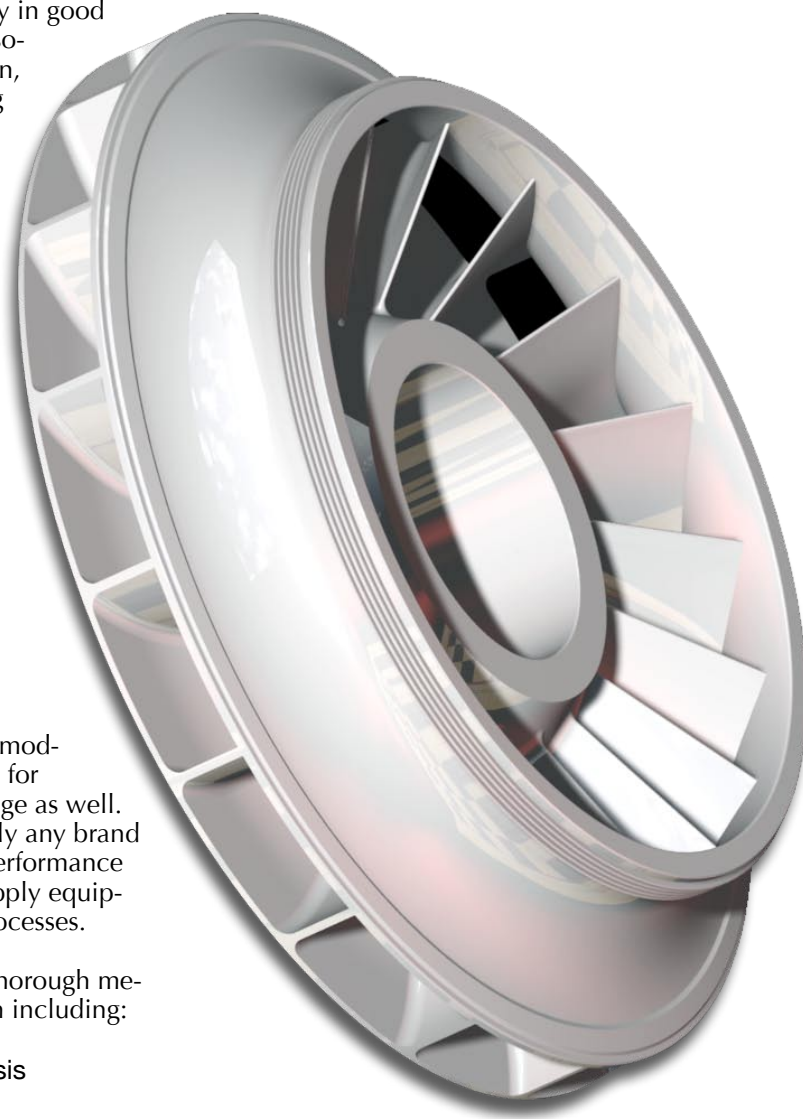
## **Rerating Equipment to Meet New Requirements**

As processing plants expand and are modernized, the production requirements for turbomachinery in service often change as well. Elliott has the expertise to rerate nearly any brand of rotating equipment to meet new performance requirements. We also routinely re-apply equipment for use in different industrial processes.

Elliott begins a rerate project with a thorough mechanical and aerodynamic evaluation including:

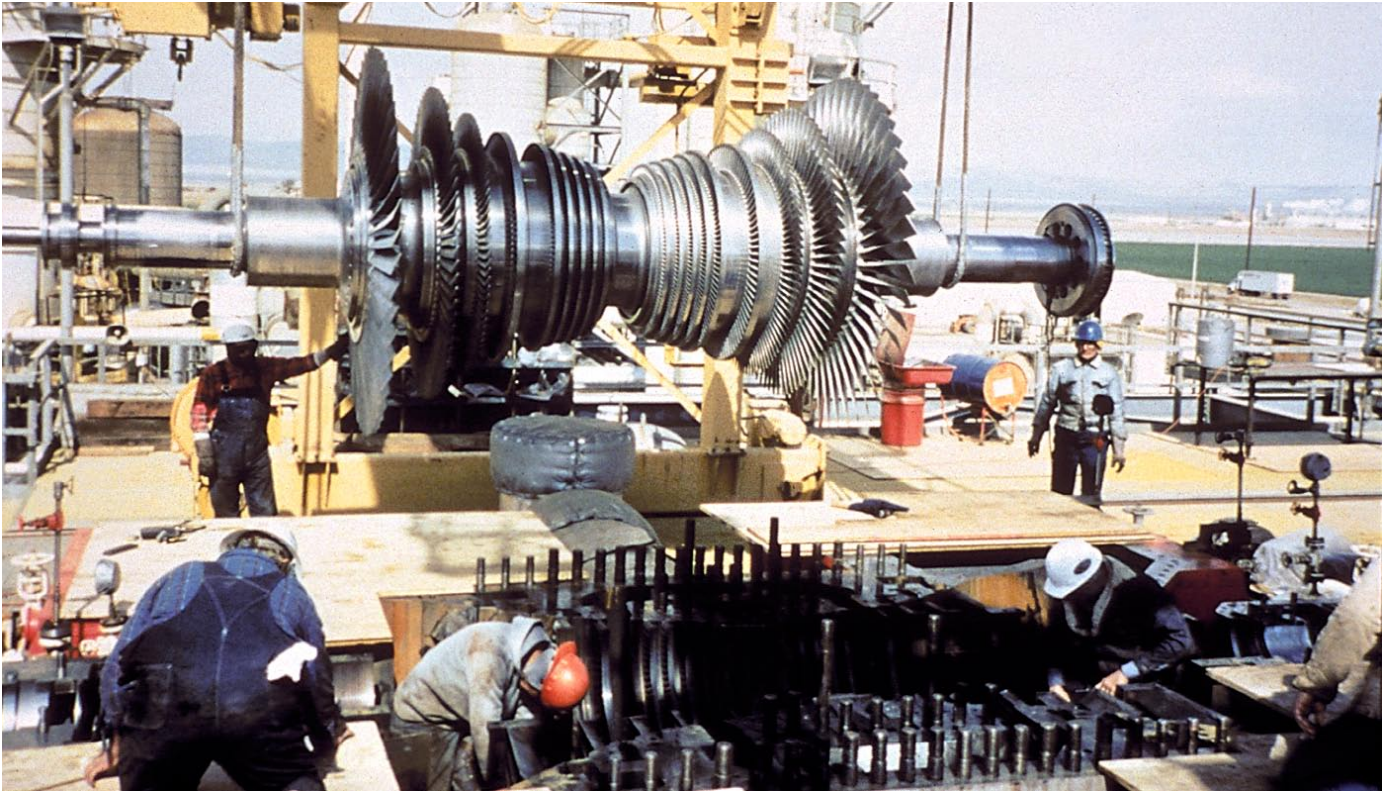
- Performance and efficiency analysis
- Flow path definition.
- Material analysis
- Rotor dynamic analysis
- Finite element analysis (FEA)
- Gas analysis

Using computer-aided design (CAD) and computational fluid dynamics (CFD), Elliott engineers develop comprehensive design specifications that meet or exceed the revised application requirements. And with coordinate measuring machines (CMM) and manual dimensioning we are able to re-engineer and manufacture virtually any component.



The world turns to Elliott

**RERATES**



*Elliott redesigned blading on a steam turbine rotor to boost power without increasing steam requirements.*

## Performance Upgrades

Upgrades are a cost-effective way to enhance the efficiency, boost the performance and lower the operating costs of rotating equipment in regular service. Common upgrades and modifications installed by Elliott include:

- Bearing upgrades for improved reliability, reduced vibration and longer operating life
- Seal upgrades for reduced steam consumption, improved aerodynamic performance and lower maintenance costs
- Governor upgrades for increased safety and control
- Control system upgrades for enhanced functionality and system integration



*Complete refurbishment and reapplication of a Carrier compressor*



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