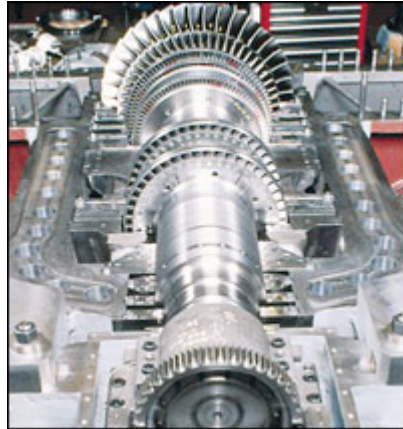


Steam Turbine Manufacturer Case Study

Tactical Engineering Solutions (TES) provides practitioner-based consulting and training services that deliver measurable results for our clients. We work with our clients to understand their objectives, identify solutions that are capable of achieving them, and develop appropriate plans to achieve, validate, and sustain the intended benefits.

SERVICES:

Operations Performance
Lean
Six Sigma
Rapid Improvement
Logistics
Quality Management
Program Management
Change Management
Collaboration and Time
Data Management
Training & Certification



Problem: A steam turbine manufacturer was experiencing throughput issues and needed to improve delivery time to their customers. Sales opportunities were being missed due to inability to meet quoted lead times. They identified one particular area of their plant to be the most significant constraint, with throughput taking twice the available takt time due to extensive reworks. This customer asked TES to develop a leaner, accelerated production process for the constraint area that would also stabilize their operations.

Project Goal:

Conduct analysis of constraint area and develop improved layouts, processes workloads and flow diagrams to increase throughput by 50% while maintaining quality levels.

TES conducted a baseline assessment through continuous monitoring of all built and machine processes in the constraint area. Lean training was conducted with all employees in the area, including Value Stream Mapping, One Piece Flow Work Station Optimization and workload leveling. A current state Value Stream Map was developed for discussion with the team. After training, a formal Kaize event was facilitated by TES, where a future state Value Stream Map was created with the employees. A major line layout revision and process resequencing was proposed, and machine allocation and assignments were revised. Work cell utilization was analyzed and increased through layout improvements, work rebalancing and changes to the flow of product through the work stations and machines.

Multiple process changes were made to improve material supply and flow, as well as the flow of work in process, with "triggers" put in place to create notification for "pull." The new layout was implemented, and efforts at this stage shifted to improving the machine time on specific machines with attention given to changeover times. Each constraint machine received capability and capacity assessments and Six Sigma tools were utilized to analyze machine variation. TPM strategies were utilized to improve OEE. TES improved the performance and throughput in the primary constraint area and respective machines to achieve the project goals, which also improved morale.

Benefits of Project:

1. Order to Delivery performance improved from 30% to 95%
2. New layout's FIFO lanes reduced number of sites needing forklift trucks
3. Lead Time days improved from 114 days to 20 days
4. Cycle Time improved from 14 hours to 7 hours



Tactical Engineering Solutions Overview

SOLUTIONS:

Continuous Monitoring
Process Flow Mapping
Workstation Layout
(5S)
Material Movement
Problem Solving
Workgroup Development
End User Training
Supplier Development
Value Stream Mapping
Standard Work
Workload Optimization
Simulation
Six Sigma
Facility Layout
Visual Factory (Andon)
Pull Systems
Enterprise Performance

For more information on any of our products or services please visit us on the Web at:
www.tacteng.com

TES is a Manufacturing Engineering services firm focused on helping our clients develop **and implement** sustainable operational improvements that deliver measurable results. We work in a collaborative manner with you and your team through the difficulties of the implementation phase and we can ensure that changes deliver and sustain improvements for your customers and staff.

Our transformation work focuses on three elements:

- Developing new operating systems to improve productivity and flow using Lean Six Sigma techniques, with limited capital investments
- Creating the performance management system for leaders to monitor and improve performance
- Building realistic, practical capabilities and confidence that our clients will need to continuously improve

Our specialists in Lean Six Sigma can help clients deliver performance by:

- Developing transformation programs (e.g. labor and manufacturing efficiency improvements, process improvements)
- Supporting existing change initiative
- Conducting performance diagnostics
- On site facilitation for Value Stream Analysis and Kaizen events
- Creating performance management systems (e.g., tracking tools, accountability programs)
- Building organizational capabilities
- Executive leadership and coaching
- Zero cost productivity improvements

We bring best practices from leading manufacturers from around the world and a broad base of industries. We measure our success by the sustainability of our impact and the capability we transfer to clients.

About Us

Tactical Engineering Solutions is a veteran-owned/women owned disadvantaged small business, serving the business needs of both private and public sectors. Headquartered in Michigan, our roots originate in the manufacturing industry and as we have grown, our portfolio of resources continues to expand upon this foundation into other industries, to include Transportation, Electronics, Aerospace, Healthcare, Power, Department of Defense, and more.

It is this rich heritage that allows TES Engineering Solutions to support our clients with a first-hand understanding of the challenges that businesses face.

Tactical Engineering Solutions is registered with Dunn & Bradstreet and the Federal Government's Central

VISION

TES executes programs that are on-time, on-budget and technically accurate to help our clients reduce overall cost and improve throughput while increasing customer satisfaction.



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