



Reducing Operational Costs Through Rapid Improvement

Challenge

A California-based manufacturer of OEM sensors and transducers for industrial and transportation companies throughout the world was faced with rapidly intensifying cost pressures. Based on prior successful experience working with Tefen on similar initiatives within other areas of their business, the company once again turned to Tefen USA to address their challenges and assist them in achieving their desired goals. The company's transportation and industrial division's key objective for this initiative was to rapidly reduce operating expense and increase manufacturing throughput through utilizing Lean Manufacturing techniques. The focus was on six key manufacturing lines, with the client measuring success based on the impact to Labor Minutes per Unit (MPU).

Furthermore, the company needed to implement the improvements from this initiative within a compressed time frame. Thus, changes requiring customer approval which typically took long periods of time were avoided.

How Tefen Helped

To address challenges in the six key manufacturing areas the client identified, Tefen USA launched a 12-week improvement effort consisting of an initial one-week assessment followed by rapid implementation of identified improvements over a short two-to-three-week period.

During this effort, Tefen's consultants assessed the current operations of each of the six manufacturing lines. Using Lean Manufacturing methods of Standardized Work, Line Balancing, Layout Improvements, Set-up Reduction or SMED (Single-Minute Exchange of Dies), and Visual Controls, Tefen identified numerous improvement opportunities which would yield higher levels of throughput, reduction in operating expenses, reduction in MPU and overall higher levels of productivity. Improvements included, but were not limited to:

Standard Work

Through Standard Work studies, Tefen consultants analyzed the manufacturing work content associated with each process on every line and measured the time required to perform each activity. The time was then compared to and balanced against the time available each day to produce the customer demand (also called "takt time"). The goal was to redesign the process and assign work to each operator to fully utilize their available time (without Overtime) while still meeting the customer requirements. These improved processes also included redesigns of the manufacturing layout and combinations of work resulting in an increase in the ability of operators to attend to more than one piece of equipment.

Line Balancing & Value-add vs. Non Value-add Analysis

By identifying non value-added activities on the line, Tefen was able to help the company identify bottleneck machines and reduce their cycle times to increase manufacturing capacity. One instance identified a bottleneck which was subsequently improved by 50% allowing the client to suspend a capital improvement project for an additional machine. Furthermore, within one manufacturing area (hybrid surface mount assembly), pick and place machine cycles were reduced by an average of 20%. This was accomplished by a combination of balancing the load across two in-line machines and optimizing the existing programs.

Single Minute Exchange of Die (SMED)/Set-up Reduction

Through the use of SMED methodology studies, Tefen evaluated the process required to change a piece of equipment from producing one product to another. This involved separating external steps from the internal set-up time, converting tasks from internal to external, and streamlining all the steps required to complete the set-up. This resulted in an increase in production capacity for each of the pieces of equipment analyzed.

Visual Controls

Through the implementation of Visual Controls, Tefen was able to provide assemblers and manage-

ment with a standardized method to communicate the status of an operation. Supervisors and managers would now be able to review the visual control boards for their respective departments and take remedial and corrective actions as necessary to ensure their departments meet customer requirements.

In addition to this focused improvement initiative, Tefen conducted a week-long Kaizen event combining training with a hands-on workshop for 18 of the company's team members. These team members included assemblers, production leaders, supervisors, engineers, planners, and human resources staff. As part of this exercise, the group was split into two teams with each being assigned a production area to practice waste elimination and development of standard work. Numerous improvements were implemented and results reported back to executive management at the conclusion of the Kaizen event.

- Established new lower par levels for top-spend units
- Established inventory management policy
- Implemented a two-bin Kanban system and eliminated automated inventory supply cabinets
- Improved supply order & delivery processes using material management, not clinical personnel
- Standardized supplies (where applicable, for top-spend items)

Performance Excellence Delivered

The results of this project exceeded the company's expectations, with improvements materializing in the areas of throughput, scrap reduction, and labor savings as follows:

- Labor reductions equivalent to \$1.25M annually
 - Average Minutes Per Unit (MPU) improvement of 19.8%
 - Reduction in Changeover Time of 68%
 - Average travel time reduction of 20%
 - Throughput improvements providing an annual cost avoidance of \$103K
 - Reduction in Scrap of \$300K annually
 - Additional kaizens workshops contributed an additional \$260k in labor savings annually
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About Tefen

Tefen is an international management consulting firm, committed to improving overall operational effectiveness for Fortune 500 companies around the world. The firm's main areas of focus include operations excellence, manufacturing, quality, customer service, research and development and supply chain management. With its "hands-on" approach philosophy, the company has achieved tremendous success in delivering quantifiable and value-driven results for its clients in a variety of industries, including healthcare, life sciences, general manufacturing, high-tech and financial services. All of Tefen's support programs are ISO 9001 certified. Tefen currently employs over 300 professionals worldwide.

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