

# Ammunition Manufacturer

Leveraging Lean operational improvements during a time of tremendous growth

## The Challenge

An Ammunition and Arms manufacturer was experiencing increase in demand but was not able to overcome constraints with aging equipment and constant breakdowns. They were muscling through orders eventually having to add a 3rd shift adding to costs. They knew they had to make changes but were unsure of exactly what.

## What We Did

We performed an analysis across all shifts in all areas of the operation over a three week period. Both production and maintenance became the main focus, requiring a concerted effort on planning and coordination between all steps along the value chain. Communication between shifts was poor, production targets were being missed, work in progress was backed up at stations, and numerous problems with staging mishaps and maintenance breakdowns were occurring. The Machine equipment was from WWII era and overdue for rebuild or replacement as many were not capable of running at design standards. Adding to the downtime, mechanics often did not have complete part kits or tools and spent unnecessary time searching for them.

We began developing and implementing a LEAN approach to balance the production lines, Kanbans to replenish stores, and staging of work and materials for continuous flow. Together we streamlined processes and trained supervisors to conduct effective shift handoffs setting up the next shift for success. With engineers and toolroom we designed and assembled tooling kits for all critical equipment to improve the SMED for change overs , standardizing tool carts and ensuring they are always fully equipped for repairs which greatly reduced downtime.

Shift Handoffs

Line Balance

Parts Kitting



## The Results

- Lean tools and methods balanced the production lines from push to pull to be able to flow the demand
- Conducted Lean training across the plant to instill a Lean mindset and culture
- Downtime was reduced by 58% enabling production capacity to increase eliminating the need for the 3<sup>rd</sup> shift
- Savings of \$7.4M with a 6:1 ROI