

SMED OPERATIONAL EXCELLENCE

Case Study



How a leading Tier 1 manufacturer used SMED techniques to make their manufacturing flexible

OVERVIEW

The manufacturer is a 100 crore plus turnover Tier 1 supplier to major automotive OEMs in two wheelers, commercial vehicles, and off-road segment. They manufacture heavy sheet metal, fabricated and machined components from their multiple factories in Tamil Nadu.

The Chennai operations was catering to two-wheeler and commercial vehicles segment. The business faced the challenge of not able to meet increasing customer schedule month on month. The client believed that the current capacity of the plant is sufficient, and the problem is in downtimes (particularly setup time / changeover time) impacting machine utilization.

Krysalis is a team of lean manufacturing consultants from Chennai, with over a decade experience in implementing Lean, was asked to intervene in releasing unutilized capacity.

One of the major lines (in terms of volume & sales) catering to two-wheeler segment has been identified for improvement. The task on hand was to improve the capacity utilization of the bottleneck machines in the line.

Cycle times, installed capacities, run hours and output strokes for the past months were gathered, analyzed and it was validated that changeover time contributes significantly for capacity underutilization. The hydraulic press machines were identified to be bottleneck machines and Single Minute Exchange of Dies (SMED), a Lean Manufacturing technique was proposed in this case to improve the current situation

The objective was to reduce the current setup / changeover time from 35 minutes to less than 10 minutes. The reduction in changeover time was critical for business from delivery point of view with substantial increase in orders from customers.

APPROACH

- Detailed study of current changeover process was done involving videography study. The broad activities were sliced to micro activities and categorized into Value Adding (VAs) & Non Value Adding (NVAs).
- Operators' awareness on Changeovers, internal / external activities were provided, and the team was onboarded for implementation
- Assessment of 5S practices, Tool management, Storage & Material handling infrastructure carried out to understand its impact on changeover time
- Assessment of existing standards for carrying out Changeover process in terms of planning, people and processes were studied in detail.
- Action plan for changeover improvement was carried out in 2 phases. Phase 1 focused on soft & easy to implement factors like 5S practices, Tool matrix, Standards (SOPs & Check sheets), ECRS (Eliminate, Combine, Reduce, Simplify) opportunities resulting in bringing the changeover time to below 20 mins.
- Phase 2 focused on technical aspects of machines, tools, methods combined with industry best practices & infrastructure improvements (usage of right clamping, changeover kits, checker plate modification etc.,).

RESULTS



68%

Reduced changeover time from 35 min to 11 min



15%

Line production capacity released



5X

Improvements in returns from the line

KEY HIGHLIGHTS

Through this engagement, some key changes were brought in.

- Improved storage of Raw Material & tools
- Tool size and clamping modified
- Implemented standard blocks
- Shut height optimized
- Tool kits initiated
- HOL conditions ensured
- RAM adjustments made