

### Case Study

**Cluster: Nashik Industrial Components and Equipment Manufacturers Cluster 2 (DPG4)**

**Unit: Preeti Engineering Works  
CEO: Mr. Priyesh Panicker**

**LMC: Aniket Bagde, AB Associates**

**Project: Lean Design for Manufacturing**

### Case Definition

- Preeti Engineering Works manufactures product called finned ring
- Monthly requirement is 300 Nos.
- Part in consideration goes into Air Cleaner Housing as shown below



Finned Ring



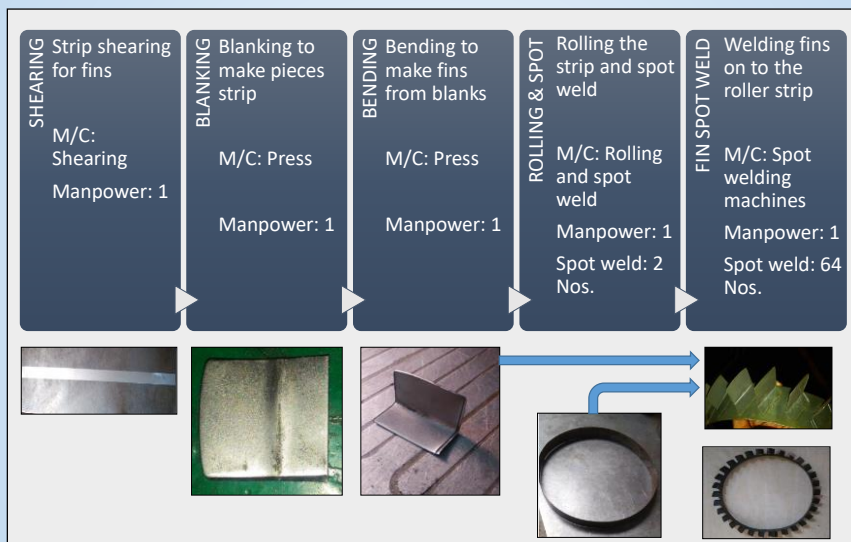
Air Cleaner Housing



Finned ring place in Air Cleaner Housing

- Problems faced:
  - Multiple time consuming manufacturing processes
  - Poor On Time Delivery
  - Excess material movement
  - Chances of rejections / rework
  - Chances of product failure at customer end due to improper spot weld
  - Operator fatigue
  - High cost of manufacturing

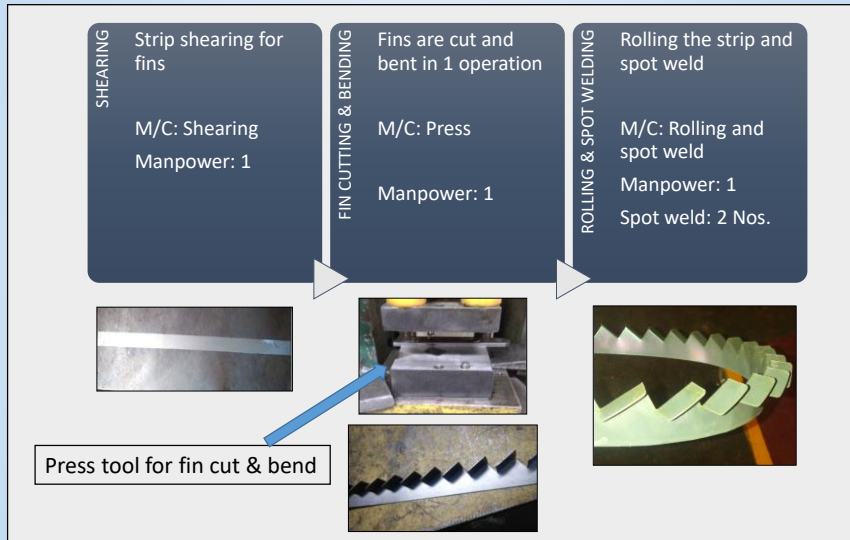
## Process 'Before' Improvements



## Analysis

- Manufacturing process was lengthy with multiple processes involved
- Batch processing led to excess handling and transportation
- Job involved too many spot welds (66 per job)
- Solution
  - Based on Lean Principles, new part design was proposed to the customer
  - Lean Design process was incorporated to ensure 'Design for Manufacturing'
  - Focus was on to reduce the number of processes, batch size, manpower required, equipment required and chances of rejections and rework
  - Small specialized tool was made which took care of cutting and bending
  - Customer approved the samples after testing functionality

**Process 'After' Improvements**



**Benefits from the project**

- Lean Wastes addressed
  - Motion
  - Excess transportation
  - Inventory
  - Over production
  - Over processing
  - Waiting
  - Defects
- Improvement in
  - On time delivery
  - Customer responsiveness
  - Drastic improvement in lead time
  - Eased production planning & Control

- Number of processes reduced from 5 to 3
- Number of components in final product reduced from 33 to 1
- Number of Spot Welds reduced from 66 to 2 per job
- Number of Spot Welds reduced from 66 to 2 per job

## Tangible Results



### Old Process

Sr. No.	Process	Time for 100 no's in Hr.
1	Strap Shearing for fins	0.5
2	Fins Blanking	8
3	Fins Bending	8
4	Strap for round cutting, rolling & Spot Welding	0.5
5	Spot Welding fins on strap (For 1 fin strap)	8
Total Time required		25

No of Operators : 3

### New Process

Sr. No.	Process	Time for 100 no's in Hr.
1	Strap Shearing for fins	0.5
2	Fins Blanking, Fins Bending	8
3	Spot Welding fins on strap (2 Spots)	1
Total Time required		9.5

No of Operators : 2

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## Financial Saving



Sr. No.	Process	Old Process		New Process	
		RS Per stroke	RS per 100 fins strap	RS Per stroke	RS per 100 fins strap
1	Strap Shearing for fins	0.15	15	0.15	15
2	Fins Blanking	0.15	450	0.15	450
3	Fins Bending	0.15	450		
4	Strap for round cutting, rolling & Spot Welding	1	100	-	-
5	Spot Welding fins on strap	9	900	0.25	25
Total		10.45	1915	0.55	490
Monthly Requirement of Fins; 300 no's			5745		1470
Total expenses for the year in rupees			68940		17640
Time saving for 100 fins mfg. in rupees		135000 (25 hrs, 3 Men)		34200 (9.5 hrs, 2 Men)	
Total			203940		51840

**Total Saving = 203940 – 51840 = 1,52,100 INR Per year.**

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