BALL BEARING MANUFACTURING – A case study

About the Client

Client is one of the leading manufacturers of the high precision balls. Today they are exporting to more than 20 countries around the world and gaining strong presence in noise sensitive & other critical applications.

The products manufactured at the company can be found in the most demanding applications like Automotive, Industrial, Electrical, Medical, Cosmetics etc.

Client's Challenge

- Work standardization
- · Underutilization of resources
- Layout Modification
- Lean wastes analysis.

Key points

- Work standard development.
- Optimization of resources.
- Layout optimization and organization.
- Elimination of systematic waste through sustainable concepts.

PMI's Approach

- Visit to client and observation of activities and data collection (all processes as per flow)
- Work standard development using PMTS technique
- · Production study to identify losses and operator engagement
- Individual machine capacity and in/out buffer identification
- Validation of observed data with client
- Work distribution with respect to bottleneck operation
- Manpower calculation with the help of Man Machine chart
- Listing of improvement (i.e., layout, LCA, ergonomic)

Input Table			
Discription	Input data		
Primary Boxes retrieval trolley capacity	100		
No. of boxes Packed in one trolley	70		
No. of boxes Pack in one tape	70		
Secondary Box Capacity	70		
Which Shift running (1st or 2nd)	1		
Total Available Time (Min.) (Tea, Lunch,	460		

Assumptions 4 1

Working time is considerd as 510 Mins.

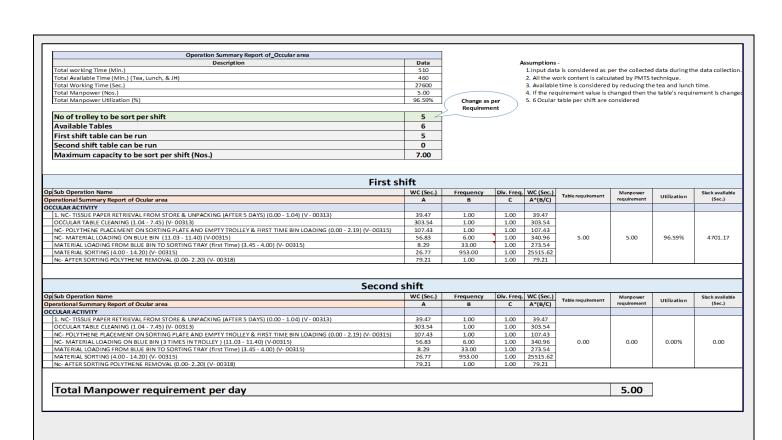
Manpower available for 460 Min. per shift.

Machine availability is 100 % wihotiout any rework or breackdown.

Work content is based on PMTS Technique

If Requirement figure Is change then the manpower utilization and Salck time is changed.

Activity	Total Work content per shift (Min.)	Capacity of Box Packing per shift	Extisting Manpower	Existing Utilization	Slack Time Available (Min.)	Requirement of boxes for packing		Proposed Utilization	Slack Time Available (Min.)
Menties Machine	20.625	283	1	99.95%	0.22	90	1.00	34.84%	299.71
Box Packing	1.55	203	1	22.23/0	0.22	, , , , , , , , , , , , , , , , , , ,	1.00	34.04/0	255.71
						Change as per the requirement			



Results

- Productivity improvement 25%
- Manpower Optimization @ 20%
- Suggestions and improvements for better working conditions

Line	Existing Manpower/shift	Proposed Manpower/shift	Manpower saving/shift	
SH 02 Line	5	4	1	
AL 01 Line	5	4	1	
SS 01 Line	5	4	1	
Total (Nos)	15	12	3	
Total Manpower reduction %			20%	
Total Productivity Improvement %			25%	

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