

## Why Lean Manufacturing?

Lean Manufacturing is a logical collection of practices, methodologies and tools, which will lead any Company to greater cost reductions and efficiencies improvements.

If Lean Manufacturing is implemented correctly companies can expect cost improvement results in double-digit percentage numbers.

In the area of Material Handling/Scheduling/Production Control companies can expect following improvements:

- Significant reduction of inventory levels
- Significant improvements to Inventory Turns
- Total elimination of down time due to parts shortages
- Drastic reduction of delivery lead times
- Quicker response times to Customer requirements
- Achievement 100% on time deliveries
- Reduction of Overtime resulting from Schedule changes
- Reduction of storage space
- Better material handling manpower utilization
- Better Material Flow and Information Flow

In Manufacturing / Operations areas companies can expect:

- Higher utilization of Investment
- Higher production output
- Reduction of equipment down time
- Improved quality, less scrap
- Reduction in manpower requirements
- Better utilization of floor space
- Improved Work Cells efficiencies
- Reduction in Changeover and Set-up down time
- Safer work environment

## Management Commitment

Before starting implementation of Lean Manufacturing the Company must accept the following Operating Principles:

- Improvement is always possible and necessary. Any existing process can be improved - no ifs, buts or maybes.
- Customers are the reason for existence, and they must always have a perfect product or service.
- Continuous Improvement activities are management responsibilities. They will be measured, reported and evaluated weekly.
- Implementation of Lean Manufacturing must be taken seriously and supported by all levels of the Organization.
- A manager's role consists of leading problem solving activities in a multi-skilled, cross-functional team environment.

## Lean Manufacturing Philosophies

Expected cost reductions and process improvements can be achieved only, by implementing, supporting and maintaining following Lean Manufacturing methodologies and principles:

- Every customer-supplier connection must be direct and there must be a clear-cut way to send requests and receive responses.
- All production lines must be balanced and operating to the Takt time
- The pathway for every product and service must be simple and direct.
- All our process must flow without interruption
- All inventory buffers are wasteful and need to be eliminated.
- All inventory levels will be determined based on the frequency of deliveries, delivery lead times and consumption rates.
- All inventories will be stored in centralized Supermarkets.
- Production Schedule will be issued only to a single operation, all preceding operation will work to the Pull System signal.
- All production must be scheduled in the smallest logical lot sizes.
- Daily schedule attainment is mandatory. Manufacturing will not overproduce, under produce or produce too soon.
- All deliveries of parts and components, internal and external, will be conducted frequently and in smallest possible lots.
- All production down time due to parts shortage must be eliminated.

- All Waste is not acceptable and must be eliminated
- Our Set-up and Changeover processes must be minimized – SMED
- All work shall be highly specified as to content, sequence, timing, and outcome and be defined in terms of Standardized Work.
- All equipment and work cells will be designed to support continuous flow processing
- Manufacturing equipment will be maintained properly and repaired swiftly
- All vital information required to make shop floor decisions will be visually displayed for anybody to see and to understand.

Lean Manufacturing tools that will help us achieve these results include:

- Concept of Takt Time
- Value Stream Mapping
- Standardized Work
- Pull System
- Kanban – a signal card, pull card
- Leveled Production Schedule
- Kaizen Workshops
- Supermarkets
- Story Board
- Information Boards
- Visual Management
- Workplace Organization – 5 S
- “Milk Runs” – Tugger Deliveries
- Andon – status display board
- Plan-for-Every-Part
- Jidoka – stop the line, fix the problem
- In-Station Process Control
- Fixed Position Stop System
- Pokayoke – failsafe, error proofing devices

Lean Manufacturing reflects ways of thinking about business - the assumptions that underlie how people and institutions formulate solutions to problems of organizing people, equipment, material and capital to create and deliver products to the customer. Lean Manufacturing is "lean" because it uses less of everything compared with traditional "mass" production.