

Lean Manufacturing - What does it really mean?



Lean Manufacturing

In a highly competitive environment, industry is currently under extreme pressure to reduce both costs and lead times and to improve response times. A popular way forward is to employ lean manufacturing techniques, the objective of which is to eliminate waste.

Waste can be defined as any activity that utilises resources but does not add value to the product, for example:-

- Over production of parts
- High inventories and work in progress; unnecessary movement of employees or goods around the factory
- Waiting time and scrap being among the most obvious

Value stream mapping is a tool that is often used to analyse how a part is produced from the design stage through manufacture to delivery to the customer, identifying areas of waste or processes that contribute little or no value to the product, each of which might be taken either in isolation or collectively and either eliminated or substantially reduced. Waste is not confined to the manufacturing process however, but can manifest itself in other areas, for instance, in the preparation of manufacturing documentation where a good job processing software system can save up to 80% of the time used to carry out the task manually.

Value stream mapping can also be used to identify common machines and processes facilitating economic machine tool/process grouping thus minimising distance travelled, improving machine utilisation and rationalising changeover times. As a guide, the aim should be to have machines available for production for at least 90% of the time reducing changeover times to a maximum of 10%. Software systems to aid this task are available.

The objective of lean manufacturing should be:-

- Don't make anything until it's needed then make it quickly
- Perform more effectively
- Do more for less
- Utilise less people, less equipment, less time, and less space.
- And provide the customer with what he wants when he wants it.

Cont.....

Tricorn Systems
9 Borelli Yard
Farnham
Surrey GU9 7NU

Phone: 01252 821889 Email: info@tricornsystems.co.uk

Lean Manufacturing - What does it really mean?



■ Lean Manufacturing - cont.

Lean thinking is a complete change from the older principles that we were used to - like manufacturing or purchasing in economic batch quantities that could lead to high inventories and work in progress of lower cost parts but which tie up valuable capital in the process. The same could be said about expensive plant or machine tools that can produce high volumes in a fraction of the time leading to queuing in the workplace, whereas a much less expensive piece of plant may very well perform the task adequately and maintain the flow in the production process and still give the customer product on time.

Many companies employ kanban techniques as a means of reducing their inventory, but to work effectively for all, these principles need to be flowed right down the supply chain so that everyone delivers on demand, just in time. Kanban relies on a trigger which is usually in the form of an empty bin creating a demand on the next supplier in the chain to fulfil. This along with the operation of a pull system in the factory where the rules are; don't do anything until the next operation signals it will be ready to receive, are visual control systems and whilst they can dramatically reduce work in progress and inventory some buffers are sometimes needed in order to be able to respond to the demand in time.

The employment of a scheduling system however can be a significant aid in more effective utilisation of machines and optimising flow resulting in improved lead times thus further reducing work in progress and inventory.

Ian Burstow
Tricorn Systems

Tricorn Systems
9 Borelli Yard
Farnham
Surrey GU9 7NU

Phone: 01252 821889 Email: info@tricornsystems.co.uk