

Productivity Improvement of a Machining Plant

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ABSTRACT:

In today's competitive manufacturing environment, it's essential to get the most out of your existing assets. That's why manufacturers depend on Technologies for manufacturing process improvement consulting services, perform in-depth operations analysis, evaluate your overall performance and recommend an appropriate productivity improvement strategy.

There should be a deep process and technology expertise needed to provide a unique solution to meet needs.

I. Introduction:

A factory (previously manufactory) or manufacturing plant is an industrial site, usually consisting of buildings and machinery, or more commonly a complex having several buildings, where workers manufacture goods or operate machines processing one product into another.

Factories arose with the introduction of machinery during the Industrial Revolution when the capital and space requirements became too great for cottage industry or workshops. Early factories that contained small amounts of machinery, such as one or two spinning mules, and fewer than a dozen workers have been called "glorified workshops."

Most modern factories have large warehouses or warehouse-like facilities that contain heavy equipment used for assembly line production. Large factories tend to be located with access to multiple modes of transportation, with some having rail, highway and water loading and unloading facilities.

Factories may either make discrete products or some type of material continuously produced such as chemicals, pulp and paper, or refined oil products. Factories manufacturing chemicals are often called plants and may have most of their equipment, consisting of tanks, pressure vessels, chemical reactors and pumps and piping located outdoors and are operated by personnel in control rooms. Oil refineries are similar to chemical plants in that most equipment is outdoors.

Discrete products may range from parts to components and assemblies which are made into final products elsewhere or they may make final products. Factories may start from parts supplied from elsewhere or may make parts from raw materials. Industries making continuous materials, sometimes called process industries, typically use energy, usually heat, electricity or both, to transform raw materials into finished product.

The term mill properly refers to milling of grain, which was usually done by water power from ancient times until displaced by steam power in the 19th century. Because many processes like spinning and weaving, iron rolling, and paper manufacturing were originally powered by water, the term survives such as steel mill, paper mill, etc. Workplace must have the best machinery, devices and equipment that yield error free results in the minimum possible time. Efficient electronic equipment with no connectivity issues and breakdowns will help to save precious time. They should take the place of paper work, and yield fast results. Some of these include to include productivity includes :

- Activities and services 24 hours per day: the manufacturing of custom and special parts requiring great precision that are produced in small quantities, as well as of complex and complicated parts, is characteristic of our area of activity.
- Environmentally friendly machining: During machining, greater and greater emphasis is placed on environment friendly machining, mainly on dry procedures with minimal lubrication using environment friendly oils and techniques that are carried out with the application of cooled air. Modern machining technology has to meet numerous, often in many aspects controversial challenges: more and more complex parts need to be produced by machining, from materials that are increasingly hard to work, parts with greater and greater precision have to be produced by increasing productivity, and for these operations expensive multifunctional machine tools and tools are required.
- Precision in every possible way :Great productivity and precision is critical during manufacturing. High precision potentiometer systems are used for determining the bed positions in a closed control circuit mode, at this time the attitude control loop includes the entire feed mechanics.

II. Model for Creating and Measuring Productivity Improvement:

Measurement practices in our industry have become much more sophisticated in the past two decades, unless you consider labor. To a degree, this is understandable, as we tend to gravitate to the “readily quantifiable” when we measure (readily, in this context, meaning data that is easy to obtain, and data that is reliable, objective and complete). Anyone who has tried will tell you - “‘Readily quantifiable’ and ‘labor measurement’ do not mix very well.

This is also the reason labor management software is immature as compared with inventory management or transportation management software - the other two largest costs in most operations. Highly effective technology solutions for these areas have been widely available for some time and are comparatively inexpensive. Until recently, practical solutions for labor were hard to find at any price. But that has all

begun to change. Similar to bar coding, the grocery industry led the way in implementation of labor productivity improvements decades ago. Today, the conjunction of a tight labor market, a sharper labor focus by software developers, and rising distribution have resulted in greater interest and some significant gains in other industries. Building Standards. After implementing best practice improvements, an engineer then studies the work, breaks each task into its constituent elements and develops an allocation of time for each occurrence of each element in that work. For instance, if an order picking task involves one line and three cases, the unit of work would contain elements and related time for picking up the order, moving to the location, picking each of three cases and moving those cases to outbound staging among other things. Some highly varied tasks may use 30 or 40 elements.

A precise calculation of the total “earned” time for this task presumes that the individual performing the work is using mutually agreed methods. Management’s expectation should be that a normal person with normal skills can sustain this pace for the duration of their shift (eight or ten hours) without undue fatigue.

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