



What Makes Discrete Manufacturing Different From Process?

Discrete manufacturing is all about assembling things, and making things that are exact. The products are typically manufactured in individually defined lots; a discrete product is the result of value addition at each successive step. Thus, in discrete manufacturing, the product is made by following sequential steps or say, following the same assembling steps one after the other. Discrete manufacturing based on the production orders and products change frequently from order to order.

Whereas, Process manufacturing uses formulations or recipes to obtain a final product by one or many intermediate materials, co-products and by-products. When you have a product that requires a set of processes to be finished, and each process follows unique instructions, process manufacturing is employed along with planning, procurement, and setting the manufacturing equipments for better controlled processes. Process manufacturers with batch or continuous operations rely on sophisticated tracking and scheduling mechanisms to keep operations running at peak efficiency.

Discrete Vs Process Manufacturing

Key Features of Discrete Manufacturing

- It's driven by serial number or order of assembling the tools.
- The foundation is Bill of Materials or BOM. Several multi-step BOM's are used to derive final product.
- Easily identifiable entities like screws, nuts, handles form the basic unit of production.
- These entities can be taken apart and used for something else if need be. Like, the mother board of a computer can be taken out and used in another unit.
- The manufacturing floor works off shop orders to build something.
- Make-to-stock, Make-to-order, and Assemble to order production facilities are employed
- Building, assembling & fabricating are the steps involved.
- Require sophisticated planning, scheduling and tracking capabilities to improve operations and profitability.
- The outcome of discrete manufacturing can be reversed without any difficulty.
- The products are differentiated on the basis of serial numbers or ECN's.
- It's a quantity based production.
- Defects do occur in discrete manufacturing and policies, like six-sigma, are adopted to avoid defects.
- Some examples are automobiles, computers, toys, and heavy machinery.



Discrete Vs Process Manufacturing

Key Features of Process Manufacturing

- It is an attribute driven process, where physical and chemical properties of raw materials are modified.
- Formulation lays the foundation of process manufacturing.
- Various raw materials and intermediates form the basic units of production.
- Process manufacturers build something that cannot be taken apart, technically you can take the mix out of the container and reuse the container, but you can't take the ingredients out of the finished goods produced. For example, you cannot fill the juice back in the orange.
- Mixing, blending & transforming are the processes involved.
- Serious planning and scheduling is involved to execute a successful batch production.
- The products are categorised on the basis of lot, grade, potency, shelf life.
- It's a quality based production and tests are employed at each stage to attain desired quality.
- There is no concept of defects in process manufacturing.
- Few examples are processed food and beverage, medicines, cosmetics, paints, chemicals, etc.

Business in both process and discrete manufacturing demands advance technology and stronger ERP support which can pave way for a seamless process control, greater flexibility and cost efficiency. Both discrete and process manufacturers rely on ERPs as it offers all necessary tools essential to compete successfully in the marketplace and to maximize profits.

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