

# Master Production Scheduling and Material Requirements Planning

## Balancing Supply and Demand to Meet Production Goals and Reduce Procurement Costs

### Features

- Establish short, medium and long range planning periods in terms of days, weeks, months, years or any combination
- Consider future expired inventory and future versions of your formulas and bill of materials in planning calculations
- Exclude all expired lots from on hand calculations in planning calculations
- Consolidate demand from multiple warehouses
- A graphical planning dashboard of demand and supply data, and all purchase and production recommendations.
- Perform “what-if analysis” while planning production and procurement
- Auto convert recommended orders into batch production jobs and purchase orders
- Generate super batch jobs, which includes all top level and lower level jobs, specifically all required intermediate and sub assembly batch jobs
- Convert a production order to a purchase order when an item needs to be outsourced
- Consolidate purchase orders to the same supplier into one order
- Schedule MPS and MRP processing on a frequency or calendar basis

### Benefits

- Effectively plan production and procurement activities
- Maintain optimum inventory levels
- Reduce inventory carrying and procurement costs
- Ensure production expected yields are met
- Increase customer service levels



### Introduction

Master Production Scheduling (MPS) is used to generate a master plan for what you need to produce, how much and when to produce it, based upon one’s supply and demand. Your open production orders, sales orders and forecast entries are used as finished goods demand, and your inventory levels, batch production jobs, and receipts are considered as supply. As an integrated planning module within the BatchMaster ERP product suite, MPS accesses actual supply and demand data or uses forecast data across one or more plants, enabling it to generate more accurate production plans. Once planned production orders are analyzed and approved, Material Requirements Planning can be initiated to generate purchase orders.

Material Requirements Planning (MRP) is used to generate a master plan for what you need to purchase, how much and when it is needed to meet your future batch production jobs. As an integrated module within the BatchMaster ERP product suite, MRP generates purchase order recommendations based upon future batch orders calculated by MPS. MRP can convert these recommendations into actual raw material purchase orders that meet the economic order quantities (EOQ) and expected delivery times of preferred suppliers.

Planning dashboards offer user-defined calendar views of planned production and purchase orders with drill down, analysis, grouping and rescheduling capabilities. Production and purchase orders can be assigned different statuses that govern their further processing, including an auto-conversion of orders to planned batch production jobs and purchase orders, respectively.

Once created, MPS and MRP plans can be automatically refreshed to ensure their master plans are up to date, based upon the most current information.

### Key Features

#### Demand Sources & Forecasting

For companies producing to Order, MPS considers the actual demand based on sales orders received. However, MPS also allows for the creation of sales forecasts based on historical purchases, received orders, and other forecasting metrics. Once created, forecast calculations help to anticipate demand for products and adjust material planning accordingly. Multiple forecasts can be created and used for MPS/MRP planning. Either actual or forecast demand can be used to generate an MPS plan.

## Demand Sources & Forecasting (continued)

Planners can select just actual demand, which is the customer orders booked or sold, but not yet shipped, or choose any combination of these demand sources to be used in MPS and MRP calculations:

- Forecasts
- Sales Orders
- Demands from batch production jobs
- Outbound inventory transfer requests
- Draft inventory transfers
- Quantities below minimum stock level

Dependent demand of intermediates for finished goods, and negative dependent demand for any by-products and co-products is considered in MPS calculations.

Grouping consolidates the demand for a given product across multiple warehouses into the production plan for the plant that supplies these warehouses.

## Supply Sources

Planners can choose any combination of these supply sources to be used in MPS and MRP calculations:

- On hand quantity
- Scheduled purchase receipts
- Scheduled production receipts
- Inbound inventory transfer requests
- Draft inventory transfers
- MPS recommendations for MRP

## Planning Calendars and Time Periods

The planning calendar is used to group your planning data into time buckets in order to forecast orders. Three planning buckets give you a granular view of your planning horizons, specifically view immediate data on a daily basis, medium term data on weekly basis and future data on a monthly basis. These planning horizons are further divided into time segments in which supply and demand sources are evaluated in order to generate a production plan for that period. Company calendars are considered in these time segment calculations.

## Time Fences or Past Due Orders

Time Fences ensure that no planned orders for production are automatically scheduled with the next defined number of days. Typically, one firms up a planning schedule for the next 3 days, which would then flag any recommended order within this time fence as exception.

## MRP Controlled Items

Products under MRP control require Economic Order Quantity (EOQ), lot sizing methods, preferred supplier and purchase lead time values. The generated purchase order quantities will either be in integral multiples of the EOQ or be exactly equal to demand quantity.

## MPS and MRP Planned Orders

MPS generates the production plan, creates orders and suggests a start date, end date as well as order quantity for the orders. The orders generated have status as Planned which can be changed to Firm Planned or Confirmed. The following order statuses help planners decide if orders should be planned again or are approved to be transferred into production, and optionally to procurement.

Order types are as follows:

- **Planned:** The system has recommended the order. A planned order is deleted by system in next run and regenerated
- **Firm Planned:** The order is firm planned but not yet ready to be converted to actual production/purchase order.
- **Confirmed:** The order is confirmed and ready to be transferred to an actual order
- **Exception:** The order is past due or falls in a time fence then system flags the order as exception. These orders require managerial intervention for approval or further processing.

Similar to MPS processing, MRP generates the procurement plan, creates recommended purchase orders for preferred suppliers, including suggested submission dates. Once confirmed, these purchase order recommendations are converted into actual purchase orders.

## Demand to Supply Pegging

Pegging connects demand to supply, giving planners visibility to the exact sources of demand used in MPS calculations, and how these demands are met. This view shows the generation of demand for the raw materials and components by the finished goods, the quantities needed, and the schedule to which they are needed. The planners dashboard supports a top-down model approach and provides an exploded view of the hierarchy starting from top level finished good going to lowest raw material. It details how a particular sales order is fulfilled i.e. which MPS orders are generated and eventually which purchase order is fulfilling the raw material need. This one to one mapping lets one reschedule supplies based on the deviation in the delivery dates of the Sales Order. One, by a glance, can know exactly which Purchase Orders are to be rescheduled.

## Supply to Demand Pegging

Pegging creates a relation between demand and supply and answers why procurement recommendations are being made. This view shows which purchase orders are meeting the raw material requirements of which MPS orders, and finally which sales orders are being fulfilled.

## About BatchMaster Software

BatchMaster Software offers a set of comprehensive, modular financial and manufacturing ERP solutions for formula-based process manufacturers. For more information, please visit [www.batchmaster.com](http://www.batchmaster.com) or email your request to [sales@batchmaster.com](mailto:sales@batchmaster.com)