

1 material requirements planning mrp

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Material Requirements Planning (MRP): A Comprehensive Overview**

Introduction

Material Requirements Planning (MRP) is a production planning and inventory control system designed to ensure the timely availability of materials and components for manufacturing. It optimizes the flow of materials through a production facility to meet customer demand while minimizing inventory levels.

Components of MRP

MRP consists of three basic components:

- **Master Production Schedule (MPS):** Outlines the production quantities and timing for finished goods.
- **Bill of Materials (BOM):** Defines the components and quantities required to produce a finished product.
- **Inventory Records:** Track on-hand inventory levels and planned receipts and issues.

Four Elements of MRP

- **Forecasting:** Estimates future demand for finished goods.
- **Netting:** Calculates the net requirements for components and materials by subtracting inventory on hand from gross requirements.

- **Scheduling:** Determines when components and materials will be required to meet production deadlines.
- **Execution:** Places purchase orders and schedules production to fulfill the requirements.

MRP Run Process

The MRP run process involves the following steps:

1. **Data input:** Gather and verify data for MPS, BOM, and inventory records.
2. **MPS netting:** Calculate net requirements for finished goods based on MPS.
3. **BOM explosion:** Break down net requirements into component requirements.
4. **Inventory netting:** Calculate net requirements for components by subtracting inventory on hand.
5. **Scheduling:** Determine order quantities and delivery dates to meet production deadlines.
6. **Report generation:** Produce MRP reports to monitor progress and identify potential issues.

MRP1 and MRP2

- **MRP1:** Basic MRP system that plans for material requirements based on MPS and BOM.
- **MRP2:** Enhanced MRP system that incorporates capacity planning, forecasting, and other advanced functions.

Difference between ERP and MRP

- **ERP (Enterprise Resource Planning):** Comprehensive software suite that integrates MRP with other business functions, such as accounting, finance, and human resources.
- **MRP:** Specialized tool focused solely on production planning and inventory control.

Concept of MRP

MRP is based on the concept that all materials required for production must be available at the right time and right place. By accurately forecasting demand and planning material requirements, MRP helps reduce inventory waste, improve lead times, and increase overall production efficiency.

MRP in SAP MM

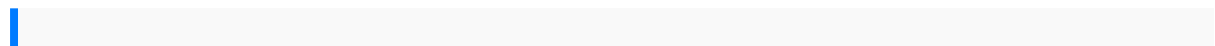
In SAP Materials Management (MM) module, MRP is a key component responsible for managing material requirements throughout the supply chain. It integrates with other MM functions, such as purchase requisitioning, inventory management, and production planning.

Consumption-Based MRP

Consumption-based MRP is a planning procedure that uses actual consumption data to estimate future material requirements. It relies on historical data and current usage trends to project future demand.

MRP in Manufacturing

In manufacturing, MRP is crucial for ensuring that materials are available to support production activities. It helps optimize inventory levels, reduce production delays, and improve overall manufacturing efficiency.



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