Module 4
Section C: Material Requirements Planning

Term
Action message

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Term
Allocation

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Term
Bill of material (BOM)

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Term
Bill-of-material explosion

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Term
Explode

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Term
Firm planned order (FPO)

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Term
Gross requirement

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Term
Indented bill of material

1) The classification of resources or item quantities that have been assigned to specific orders but have not yet been released from the stockroom to production. It is an “uncashed” stockroom requisition. 2) A process used to distribute material in short supply. Syn.: assignment. See: reservation.

An output of a system that identifies the need for, and the type of action to be taken to correct, a current or potential problem. Examples of [this] in an MRP system include release order, reschedule in, reschedule out, and cancel. Syn.: exception message, action report.

The process of determining component identities, quantities per assembly, and other parent-component relationship data for a parent item. Explosion may be single level, indented, or summarized.

1) A listing of all the subassemblies, intermediates, parts, and raw materials that go into a parent assembly, showing the quantity of each required to make an assembly. It is used in conjunction with the master production schedule to determine the items for which purchase requisitions and production orders must be released. A variety of display formats [exist] for [this], including the single-level [...], indented [...], modular (planning) [...], transient [...], matrix [...], and costed[...]. 2) A list of all the materials needed by a contract manufacturer to make one production run of a product’s piece parts/components for its customers. [It] may also be called the formula, recipe, or ingredients list in certain process industries.

A planned order that can be frozen in quantity and time. The computer is not allowed to change it automatically; this is the responsibility of the planner in charge of the item that is being planned. This technique can aid planners working with MRP systems to respond to material and capacity problems by [solidifying] selected planned orders. In addition, [these] are the normal method of stating the master production schedule. See: planning time fence.

To perform a bill-of-material explosion.

A form of multilevel bill of material. It exhibits the highest-level parents closest to the left margin, and all the components going into these parents are shown indented toward the right. All subsequent levels of components are indented farther to the right. If a component is used in more than one parent within a given product structure, it will appear more than once, under every subassembly in which it is used.

The total of independent and dependent demand for a component before the netting of on-hand inventory and scheduled receipts.

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Item record

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Term
Lead-time offset

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Term
Material requirements planning (MRP)

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Term
Multilevel bill of material

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Term
Net requirement

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Term
On-hand balance

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Term
Parent item

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Term
Parts requisition

A technique used in MRP where a planned order receipt in one time period requires the release of that order in an earlier time period based on the lead time for the item. Syn.: component lead-time offset, offsetting.

The "master" record for an item. Typically, it contains identifying and descriptive data and control values (lead times, lot sizes, etc.) and may contain data on inventory status, requirements, planned orders, and costs. Item records are linked by bill-of-material records (or product structure records), thus defining the bill of material. Syn.: item master record, part master record, part record.

A display of all the components directly or indirectly used in a parent, together with the quantity required of each component. If a component is a subassembly, blend, intermediate, etc., all its components and all their components also will be exhibited, down to purchased parts and raw materials.

A set of techniques that uses bill of material data, inventory data, and the master production schedule to calculate requirements for materials. It makes recommendations to release replenishment orders for material. Further, because it is time-phased, it makes recommendations to reschedule open orders when due dates and need dates are not in phase. [When] time-phased, [this concept] begins with the items listed on the MPS and determines (1) the quantity of all components and materials required to fabricate those items and (2) the date that the components and material are required. [Also when] time-phased, [this] is accomplished by exploding the bill of material, adjusting for inventory quantities on hand or on order, and offsetting the net requirements by the appropriate lead times.

The quantity shown in the inventory records as being physically in stock.

[In MRP and for a part or an assembly, these] are derived as a result of applying gross requirements and allocations against inventory on hand, scheduled receipts, and safety stock. After being lot-sized and offset for lead time, net requirements become planned orders.

An authorization that identifies the item and quantity required to be withdrawn from an inventory. Syn.: requisition. See: purchase requisition.

The item produced from one or more components. Syn.: parent.

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Term
Phantom bill of material

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Term
Planned order receipt

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Term
Planned order release

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Term
Requirements explosion

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Term
Rescheduling

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Term
Scheduled receipt

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Term
Scrap

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Term
Scrap factor

The quantity planned to be received at a future date as a result of a planned order release. [These] differ from scheduled receipts in that they have not been released. Syn.: planned receipt.

A bill-of-material coding and structuring technique used primarily for transient (nonstocked) subassemblies. For the transient item, lead time is set to zero and the order quantity to lot-for-lot. [This term] represents an item that is physically built but rarely stocked before being used in the next step or level of manufacturing. This permits MRP logic to drive requirements straight through the phantom item to its components, although the MRP system usually retains its ability to net against any occasional inventories of the item. This technique also facilitates the use of common bills of material for engineering and manufacturing. Syn.: blowthrough, transient bill of material. See: pseudo bill of material.

The process of calculating the demand for the components of a parent item by multiplying the parent item requirements by the component usage quantity specified in the bill of material. Syn.: explosion.

A row on an MRP table that is derived from planned order receipts by taking the planned receipt quantity and offsetting to the left by the appropriate lead time. See: order release.

An open order that has an assigned due date. See: open order.

The process of changing order or operation due dates, usually as a result of their being out of phase with production or customer commitments.

A factor that expresses the quantity of a particular component that is expected to be scrapped upon receipt from a vendor, completion of production, or while that component is being built into a given assembly. It is usually expressed as a decimal value. For a given operation or process, [this] plus the yield factor is equal to 1. For example, if [this] is 30 percent (or .3), then the yield is 70 percent (or .7). In manufacturing planning and control systems, [it] is usually related to a specific item in the item master, but may be related to a specific component in the product structure. For example, if 50 units of a product are required by a customer and [this is expected to be 30 percent (with a yield of 70 percent), then] 72 units (computed as 50 units divided by .7) should be started in the manufacturing process. Syn.: scrap rate. See: yield, yield factor.

Material outside of specifications and possessing characteristics that make rework impractical.

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Term
Single-level bill of material

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Term
Summarized bill of material

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Term
Yield

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Term
Yield factor

A form of multilevel bill of material that lists all the parts and their quantities required in a given product structure. Unlike the indented bill of material, it does not list the levels of manufacture and lists a component only once for the total quantity used.

A display of components that are directly used in a parent item. It shows only the relationships one level down.

A measurement of the yield of a process. For a specific process or operation, yield factor plus scrap factor equals 1. See: scrap factor, yield.

The amount of good or acceptable material available after the completion of a process. Usually computed as the final amount divided by the initial amount converted to a decimal or percentage. In manufacturing planning and control systems, [this] is usually related to specific routing steps or to the parent item to determine how many units should be scheduled to produce a specific number of finished goods. For example, if 50 units of a product are required by a customer and [this is expected to be 70 percent,] then 72 units (computed as 50 units divided by .7) should be started in the manufacturing process. Syn.: material yield. See: scrap factor, yield factor.