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Material Requirements Plan

What is being planned?

All dependent demands (driven by master scheduled items)

- Purchased items
- Manufactured items
- Sub-contracted items
- Interplant demands
- Maybe even documents

Typical time horizon

Now to longest lead time – or more.

Typical time buckets

Days or weeks

Sample Material Requirements Plan

Item: A component used to make one or more higher-level items.

Lot size: 50

Allocations: 5

Lead time: 3 periods

On hand: 140

Safety stock: 8

Planning period	Past due	1	2	3	4	5	6	7
Gross requirements	40	10	30	50	50	20	30	40
Scheduled receipts			50					
Projected on-hand	95	85	105	55	5	-15	-45	-85
Projected available	95	85	105	55	55	35	55	15
Net requirement					3		3	
Planned order receipt					50		50	
Planned order release		50		50				

Definitions

Lot size: The normal quantity to make (or order) per batch.

Allocations: Quantity earmarked to fulfill specific demand orders. (Some software packages allow "hard allocations" and others don't. If there is a shortage of an item during a time period, the demand orders with "hard allocations" will not be at risk of "not having a chair when the music stops".)

Safety Stock: MRP will recommend always keeping at least this much available for emergencies.

Lead Time: MRP will plan to release orders this many periods before the needed period.

Past Due: Many MRP packages lump all past due requirements into the current planning period. The better ones provide clearer visibility.

Gross Requirements: Requirements from all sources of demand. Some packages have three separate lines for:

- Unconsumed Forecast Demands
- Independent Demands (e.g. spare parts, engineering orders, marketing samples...)
- Dependent Demands (e.g. work orders, repetitive schedules...)

Scheduled Receipts: Open order quantities due to be received. (i.e. In Transit, or soon to be in transit. Does not include Planned Order Receipts.)

Projected On-hand: "What would happen if we didn't place any more new orders?" Previous period on-hand - gross requirements + scheduled receipts. In the first period, you also subtract allocations.

Projected Available: "What will be available assuming that our planned orders arrive on time?" Previous period projected available - gross requirements + scheduled receipts + **planned order receipts**. In the first period, you start with on-hand minus allocations.

Net Requirement: The minimum quantity required in a period. (Also considers safety stock.)

Planned Order Receipt: The net requirement adjusted for lot size. (Does not include Scheduled Receipts.)

Planned Order Release: Planned order receipt offset by lead time. If the human Planner changes the suggested Planned Order Release, (by creating a Firm Planned Order), then everything gets recalculated to display the expected results of the decision.