

Demand Management (PP-MP-DEM)



HELP.PPMPDEM

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Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax
	Tip

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Demand Management (PP-MP-DEM)

Position of Demand Mgt in the Supply Chain

Position of Demand Mgt in the Supply Chain

The function of Demand Management is to determine requirement quantities and delivery dates for finished products assemblies. Customer requirements are created in sales order management. To create a demand program, Demand Management uses planned independent requirements and customer requirements.

To create the demand program, you must define the planning strategy for a product. Planning strategies represent the methods of production for planning and manufacturing or procuring a product.

Using these strategies, you can decide if production is triggered by sales orders (make-to-order production), or if it is not triggered by sales orders (make-to-stock production). You can have sales orders and stock orders in the demand program. If the production time is long in relation to the standard market delivery time, you can produce the product or certain assemblies before there are sales orders. In this case, sales quantities are planned, for example, with the aid of a sales forecast.

Planning Strategies

Planning strategies represent the business procedures for the planning of production quantities and dates. A wide range of production planning strategies are available in the SAP R/3 System, offering a large number of different options ranging from pure [make-to-order production \[Page 93\]](#) to [make-to-stock production \[Page 10\]](#). Depending on the strategy you choose, you can:

- Use sales orders and/or sales forecast values to create the demand program
- Move the stocking level down to the assembly level so that final assembly is triggered by the incoming sales order
- Carry out Demand Management specifically for the assembly

You can also combine planning strategies. This means that you could select the planning strategy [Planning with Final Assembly \(40\) \[Page 12\]](#) for a finished product, but you can still select a different strategy, such as [Planning at Assembly Level \(70\) \[Page 58\]](#) for an important assembly in the BOM of this finished product.

The planning strategies available for a material are listed in Customizing. You can assign a planning strategy to a material in the material master record, by means of a strategy group. Different requirements types are defined for each of the strategies and each requirements type contains important control parameters.

Strategies for Make-to-Stock Production

Strategies for Make-to-Stock Production

Purpose

The planning strategies explained in this section are designed for planning procurement (production or purchasing) of components by planning the final products. If you can plan at component level more easily, refer to [Strategies for Planning Components \[Page 56\]](#).

Prerequisites

Choose a make-to-stock strategy, if:

- The materials are not segregated. In other words, they are not assigned to specific sales orders.
- Costs need to be tracked at material level, and not at sales order level.

You should always use make-to-stock production if you produce stock independently of orders because you want to provide your customers immediately with goods from that stock later on. You might even want to produce goods without having sales orders, if you expect that there might be customer demand in the future. This means that make-to-stock strategies can support a very close customer-vendor relationship because your objective here is to provide your customers with goods from your stock as quickly as possible. Returns that have passed quality inspection and other unexpected goods receipts can be used for other sales orders.

This does not mean that you have unreasonably high stock levels. You can avoid them by doing one of the following:

- Create a production plan in advance (in Demand Management) to plan your stock.
If you make use of this option, you may also want to decide whether sales orders exceeding your plan are to affect production or not.
- Receive sales orders relatively early on (using scheduling agreements, for example).

Process Flow

You can automate the planning stage by passing the results of the forecast, flexible planning, or SOP directly to Demand Management. For more information, see *Transfer to Demand Management* in the R/3 Library under *Sales and Operations Planning (PP-SOP)*.

In a make-to-stock environment, smoothing of production can be an important feature. This means irregular requirements flow resulting from different customer requirements quantities can be smoothed and simply produced to stock.

Make-to-stock strategies are usually combined with a lot-size key or a rounding value. For instance, you may want to produce the entire amount for the whole month once a month only, or you may want to produce full pallets only. In the following sample scenarios, the lot-size key is always **EX** for easier understanding.

No specific product structures are required for make-to-stock strategies. In other words, the material may or may not have a BOM. The material can be produced in-house or it can be procured externally.

The strategies [Planning Without Final Assembly and Without Make-to-Order \(52\) \[Page 40\]](#) and [Planning with a Planning Material and Without Make-to-Order \(63\) \[Page 48\]](#) are exceptions to these rules. They require a lot-for-lot lot size key and do require a specific product structure

Strategies for Make-to-Stock Production

(BOM). They are, however, make-to-stock strategies in the sense of costing, in that costs are tracked at material level. These strategies enable the procurement of components on based on planning, and final assembly based on sales orders.

Make-to-stock strategies generally consist of up to five stages. The following table describes the stages involved in each strategy.

	Stage	40 [Page 12]	30 [Page 20]	10 [Page 24]	11 [Page 34]	52 [Page 40]	63 [Page 48]
1	Demand Management (creation of Planned Independent Requirements)	Yes	No	Yes	Yes	Yes	Yes
2	Procurement before Sales	Yes	No	Yes	Yes ²	Yes	Yes
3	Sales Order	Yes ¹	Yes	Yes	Yes	Yes ¹	Yes ¹
4	Procurement after Sales	No	Yes	No	No	Yes	Yes
5	Goods Issue for Delivery and Reduction of Planned Independent Requirements	Yes	Yes	Yes	Yes ³	Yes	Yes

Key

¹ = + Allocation

² = + Reduction of planned independent requirements

³ = No Reduction of planned independent requirements

Planning with Final Assembly (40)

Planning with Final Assembly (40)

Purpose

This strategy is probably the most widely used make-to-stock strategy. It makes sense to use this planning strategy if you can forecast production quantities for the final product.

Planned independent requirements are consumed by incoming sales orders so that the master plan is always adjusted to suit the current requirements situation. This means that the important feature of this planning strategy is that you can react quickly to customers' requirements. The smoothing of the master plan is less important.

Prerequisites

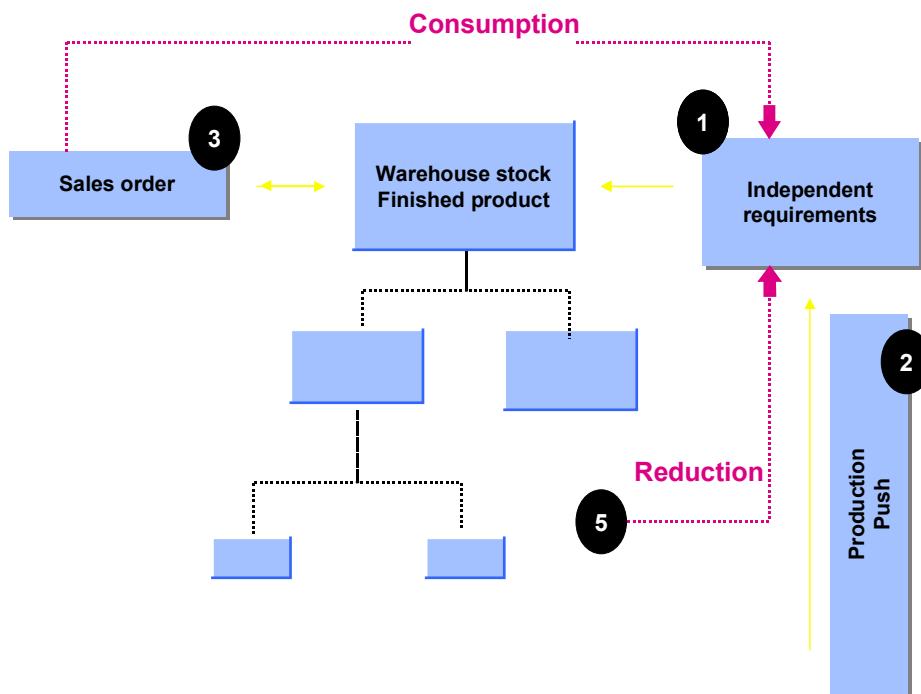
You must maintain the following master data for the finished product in the material master:

- Strategy group **40** on the *MRP* screen.
- Consumption parameters (*Consumption mode*, *Bwd consumption*, *Fwd consumption*) to allow consumption of independent requirements. If no consumption parameters are maintained in the material master, the system uses default values are taken from the MRP group.

To control consumption, you maintain a consumption mode as well as a consumption period. For more information, see [Consumption Strategies and Logic \[Page 154\]](#).

- Item category group (for example, **NORM**) on the *Sales Organization Data* screen.

Process Flow



Planning with Final Assembly (40)

For a detailed example of the entire process, see [Sample Scenario: Strategy 40 \[Page 15\]](#).

1. Planned independent requirements are entered at finished product level and trigger the procurement and production of the necessary assemblies and components before receipt of the sales orders.

It is possible to use information from the sales forecast, the Sales Information System, or other planning tools to plan production quantities.
2. As soon as the sales order is received, it consumes the planned independent requirements. You can then compare the planned independent requirements situation with the actual customer requirements situation.
3. An accurate availability check is performed according to ATP (available to promise) logic during sales order processing. The system checks whether sufficient planned independent requirements have been planned to cover the sales order.
4. Requirements from the sales orders are passed on to production and can lead to changes made to procurement if the requirements from the sales orders exceed the planned independent requirement quantities. If there is insufficient coverage of components (the sales order quantities exceed the planned independent requirement quantities), the sales orders cannot be confirmed. The system therefore automatically adjusts the master plan. For more information see [Coping with Insufficient Coverage of Components \[Page 18\]](#). Planned independent requirement quantities that are left unconsumed increase the warehouse stock of the finished product.

Other Areas

Availability Check

Unlike other planning strategies, strategy **40** does not require the material master MRP II *Availability check* to contain a specific value. This field has no major impact on the strategy **40** planning process. You can use the S/D checking rule either with or without replenishment lead times. From the sales order choose *Edit* → *Item availability* → *Goto* → *Scope of check*. See [Availability Check \[Page 157\]](#).

Statistics in Demand Management

For Planning Strategy **40**, the system displays only order quantities that have consumed independent requirements. Quantities that are in excess of this amount are not displayed. For example, suppose the following situation:

- Stock Available: 100 pieces
- Planned Independent requirements: 50 pieces
- Two sales orders: 50 pieces in each order (the orders' dates are close enough that they can consume the planned independent requirements of 50 pieces)

Confirm the creation of the sales orders, and the consumption of the planned independent requirements in the Stock Requirements List.

Choose *Logistics* → *Production* → *Master Planning* → *Demand Management* → *Evaluations* → *Display total requirements*. The Total Requirements List shows only those sales orders that have reduced the independent requirements. Orders are allocated to independent requirements on a first come, first served basis. When independent requirements are fully consumed by current orders, they cannot be further reduced by new orders. New orders are not displayed on

Planning with Final Assembly (40)

the Total Requirements List. The system performs this process dynamically, based on a calculation. The allocation does **not** display on the database.

As a result, the *statistics* in Demand Management may not display all sales figures over a planning period. In the example, only the 50 pieces of the first sales order display in the Total Requirements List, even though more were sold. Other functions, such as LIS or SIS, can be used to display those extra orders.

Sample Scenario: Strategy 40

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat3>.

Stage 1: Demand Management

1. Planned independent requirements are created as follows for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without Reference \[Page 202\]](#).

Period indicator	Reqmts date	Planned qty	Value
T (= day)	<reqdat1>	100	10,000.00
T (= day)	<reqdat2>	100	10,000.00
T (= day)	<reqdat3>	100	10,000.00

The system will find requirements type **VSF** because the strategy group has been set to **40**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).

2. The requirements are passed on to production. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	IndReq	VSF	100 -	100 -
<reqdat2>	IndReq	VSF	100 -	100 -
<reqdat3>	IndReq	VSF	100 -	300 -

Stage 2: Procurement Before Sales

1. A procurement requisition is created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
------	-------------	------------------	-----------------------------------	--------------------

Sample Scenario: Strategy 40

<today>	Stock			0
<reqdat1>	PIOrd.	1234/Stck	100 +	100+
<reqdat1>	IndReq	VSF	100 -	0
<reqdat2>	PIOrd.	1235/Stck	100 +	100+
<reqdat2>	IndReq	VSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	VSF	100 -	0

This procurement requisition is the starting point for production or external procurement. Various possibilities exist for handling the procurement process in the R/3 System. One option would be to convert the planned order into a production order, release of the production order and a goods receipt of the yield quantity. It is also possible, however, to use returns or other goods movements for make-to-stock production.

2. After receipt of the order and a second MRP run, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			100
<reqdat1>	IndReq	VSF	100 -	0
<reqdat2>	PIOrd.	1235/Stck	100 +	100
<reqdat2>	IndReq	VSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	VSF	100 -	0

Stage 3: Sales Order

1. A sales order is created (Logistics → Sales and distribution → Sales → Order → Create). Here you need to note the following:
 - It is possible to confirm any quantity up to the stock quantity according to the ATP checking rule (100 pieces in this example) under *Edit* → *Check availability*.
 - The system will find the requirement type **KSV** (under the *Procurement* tab title) because the strategy group has been set to **40**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).
 - The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**.
2. After the sales order has been entered, the stock/requirements displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			100
<today>	Order	326/010/01	90 -	10
<reqdat1>	IndReq	VSF	10 -	0
<reqdat2>	PIOrd.	1245/Stck	100 +	100
<reqdat2>	IndReq	VSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	VSF	100 -	0

Stage 4: Procurement After Sales

This stage does not, as a rule, apply in this strategy. If, however, demand exceeds planning, there may be a need for production to take place after sales.

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

After delivery (*Logistics → Sales and distribution → Shipping → Delivery → Create*) and goods issue, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			10
< reqdat1>	IndReq	VSF	10 -	0
<reqdat2>	PIOrd.	1245/Stck	100 +	100+
<reqdat2>	IndReq	VSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	LSF	100 -	0

Reduction of the independent requirements is not visible now, because the planned independent requirement was allocated during sales order processing. Technically speaking, however, the planned independent requirement is reduced by the delivery. See *Statistics in Demand Management* under *Other Areas* in [Planning with Final Assembly \(40\) \[Page 12\]](#).

Coping w/ Insufficient Coverage of Components

Coping w/ Insufficient Coverage of Components

If demand is higher than planned (in other words, sales order quantities exceed planned independent requirements quantities, this scenario applies.



The scenario below follows on from [Sample Scenario: Strategy 40 \[Page 15\]](#), but also applies to all planning strategies that use planned independent requirements.

Process Flow

1. A sales order with a quantity of 75 pieces is entered. 10 pieces remain in stock, but they are not allocated.

Only a quantity up to the stock quantity can be confirmed. The entire quantity, however, is passed on to MRP. After entry of the sales order and after an MRP run, the stock/requirements list looks like this:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			100
<today>	Order	328/010/01	90 -	10
<today>	Order	326/010/01	75 -	65 -
<t + rlt>	PIOrd.	1234/Stck	65	0
<reqdat2>	PIOrd.	1235/Stck	35	35
<reqdat2>	IndReq	VSF	35 -	0
<reqdat3>	PIOrd.	1236/Stck	100	100
<reqdat3>	IndReq	VSF	100 -	0

2. The stock/requirements list and the total requirements list (*Demand Management* → *Evaluations* → Display *total requirements*) show the allocation. The combined order quantity of 165 pieces has been allocated to two planned independent requirements; it has totally consumed the first requirement, which was on <reqdat1> and has partly consumed the next requirement of <reqdat2>. The first requirement is no longer visible in the stock/requirements list. It is, however, still visible in the total requirements list.

Requirements type	Date	Allocated quantity	Total quantity
VSF			300
	<reqdat1>		100
		100	
CREQ	<order date>	90	

Coping w/ Insufficient Coverage of Components

CREQ	<order date>	10	
	<reqdat2>		100
		65	
CREQ	<order date>	65	
	<reqdat3>		100

Result

Suggestions for coping with insufficient coverage

- You may choose to set up the consumption parameters in the material master on the MRP screen. Check to see whether the fields *Consumption mode*, *Bwd consumption*, *Fwd consumption* contain entries. If these fields are empty, default values are taken from the MRP group parameters in Customizing. If these fields are filled in the material master, however, they override the MRP group parameters.
- It is advisable to review all sales orders that could not be confirmed. You can do this by using the backorder functionality in *Sales and Distribution* under *Sales* → *Environment* → *Backorders* → *Rescheduling* → *Execute*. If you run the report in test mode (place an X in the Simulate field), it will provide you with a log which lists all unconfirmed sales orders. You could use this list as the basis for discussions between the sales and production departments to decide how to proceed.
 - One option would be to postpone the order (or some schedule lines of it).
 - Another option would be to increase production if it is still possible.
- In both cases, you must repeat the availability check for the orders.
- Backorder processing is the most efficient way of confirming multiple sales orders.

Production by Lot Size (30)

Production by Lot Size (30)

Purpose

This strategy is particularly useful for companies that mainly produce for major customers but who also require the option of selling smaller requirements from stock.

Example from Industry

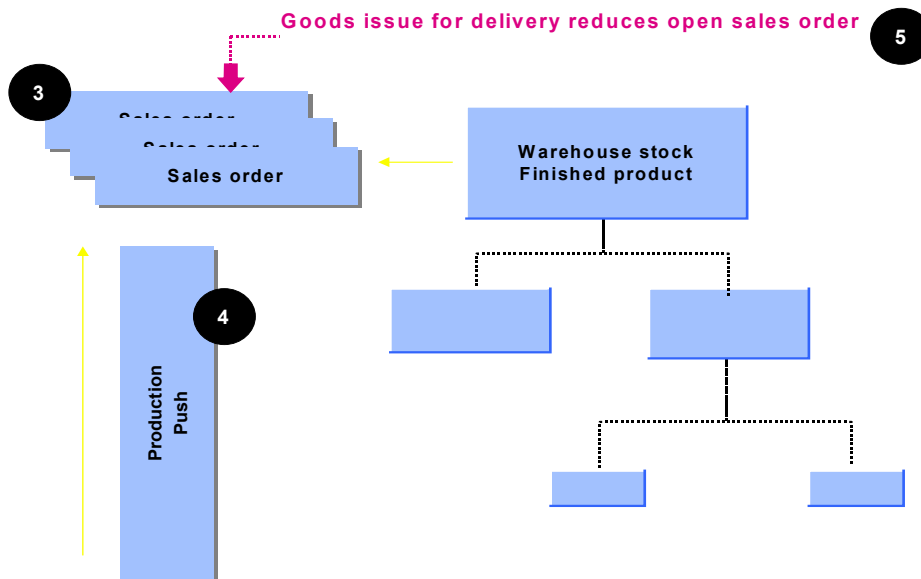
Contract-based industries, such as automotive suppliers for spare parts.

Prerequisites

You must maintain the following master data for the finished product:

- Strategy group **30** on the *MRP* screen
- *Availability check* field (on the *MRP* screen and the *Sales: General/Plant* screen) so that you perform an availability check **with** replenishment lead times (**01** in the standard system)
- Item category group (for example, **NORM**) on the *Sales Organization* screen

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 30 \[Page 22\]](#).

1. Procurement is based on sales orders only. No planning for the finished product is involved. This means that you usually have to know the sales order situation in advance (which is why this strategy is sometimes combined with scheduling agreements) regarding replenishment lead times of the components and the production time. Alternatively, you can procure the necessary components by means of the following:

Production by Lot Size (30)

- Individual planning of the components, for example using strategy 70. For more information, see [Planning at Assembly Level \(70\) \[Page 58\]](#).
 - Kanban components
 - Consumption-based components
- It is not possible to make use of information from other SAP planning tools here, such as forecasting, Sales Information System, SOP.
2. An accurate availability check is performed according to ATP logic during sales order processing.
 3. Depending on the dates, several sales orders can be grouped together to be produced collectively in one single lot, using lot size optimization and/or rounding mechanisms. The lot size in this procedure depends on various aspects of production, such as pallet size or production optimization.
 4. Stock left over from previous procurement can be used for any other sales order. This is particularly useful for companies that mainly produce goods for major customers, but who also require the option of selling smaller requirements from stock.
 5. Planned independent requirements are not consumed by sales and stock orders. However the delivery 'consumes' the schedule lines or sales order items, because it updates them accordingly. If an issue is made for a particular sales order, the system reduces the sales order quantity. Stock orders are reduced when the goods are sold from stock.

Other Areas

Availability Check

You must maintain the ATP indicator (*Availability check* field in the material master) so that you can check **with** replenishment lead times. See [Availability Check \[Page 157\]](#).

Sample Scenario: Strategy 30

Sample Scenario: Strategy 30

Process Flow

In this example, a quantity of 10 pieces is entered with a required delivery date of today. An order like this can be confirmed after the replenishment lead time.

Stage 1: Demand Management

This stage does not apply to this strategy.

Stage 2: Procurement Before Sales

This stage is also not applicable in this strategy because production does not take place without a sales order. If there are advance sales orders in the system, production is carried out before the required delivery date.

Stage 3: Sales Order

1. A sales order is created (Logistics → Sales and distribution → Sales → Order → Create).

Here you need to note the following:

- It is possible to confirm a quantity according to an ATP checking rule (*Edit* → *Check availability* on the *Sales Order* screen). Here it is important that you maintain the material master so that the replenishment lead time is used in the check, because you do not always have warehouse stock.
 - The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**. The [table of planning strategy assignments \[Page 147\]](#) shows this.
 - The system finds the requirements type **KL** (under the *Procurement type* tab title) because the strategy group has been set to **30**.
2. Once the sales order has been entered, the stock/requirements list displays the following information:

Date	MRP element	Received/ required quantity	Available quantity
<today>	Stock		0
<today>	Order	10 -	10 -

Stage 4: Procurement After Sales

1. A procurement requisition is created in the MRP run (*Logistics* → *Production* → *MRP* → *Total planning*). The stock/requirements list displays the following information:

Date	MRP element	Received/ required quantity	Available quantity
<today>	Stock		0
<today>	Order	10 -	10 -
<t + rlt>	PIOrd.	10	0



Make-to-stock + rlt = today + replenishment lead time

This procurement requisition is the starting point for production or external procurement. Various possibilities exist for handling the procurement process in the R/3 System. One option would be to convert the planned order into a production order, then release the production order and a goods receipt of the yield quantity. It is also possible, however, to use returns or other goods movements for make-to-stock production.

2. After receipt of the order and a second MRP run, the stock/requirements list displays the following information:

Date	MRP element	Received/ required quantity	Available quantity
<today>	Stock		10
<today>	Order	10 -	0

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

After delivery (*Logistics* → *Sales and distribution* → *Shipping* → *Delivery* → *Create*) and goods issue, the stock/requirements list is reset to initial (empty).

Net Requirements Planning (10)

Net Requirements Planning (10)

Purpose

This planning strategy is particularly useful in mass production environments; it is often combined with repetitive manufacturing. You should choose this strategy if you want production to be determined by a production plan (Demand Management) and if you do not want sales orders to influence production directly. One of the most important features of this planning strategy is that it enables you to smooth the demand program.

Examples from Industry

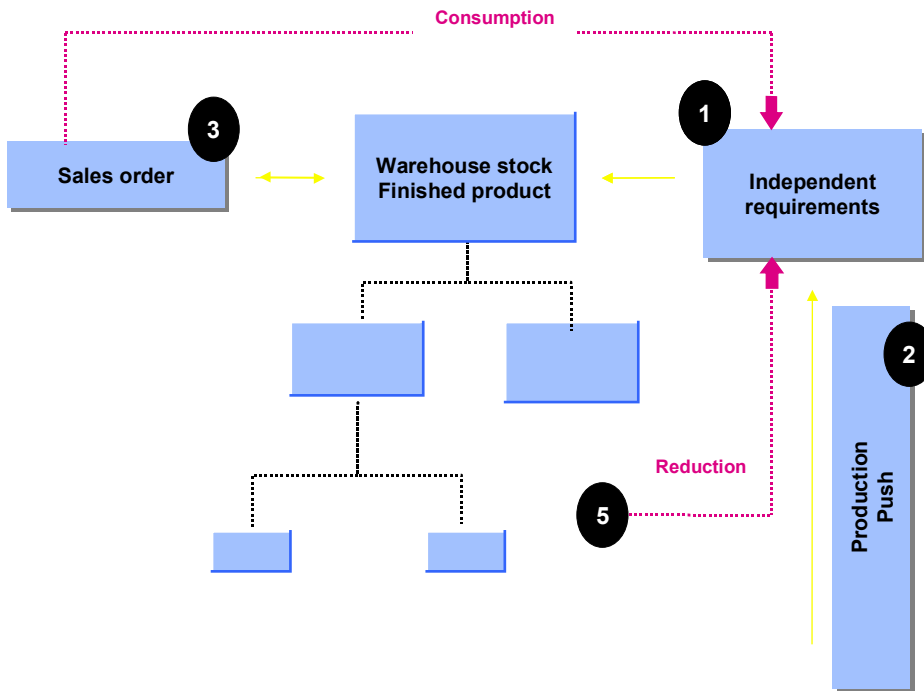
- Strategy 10 is used in the customer packaged goods industry because it is possible to plan the demand for ice cream very easily, for example, while a single order should not affect production.
- Strategy 10 is also used for products with seasonal demand where production needs to be smoothed.

Prerequisites

You must maintain the following master data for the finished product:

- Strategy group **10** on the *MRP* screen.
- Item category group (for example, **NORM**) on the *Sales Organization* screen.
- *Availability check* field in Customizing so that you perform an availability check without replenishment lead times (in the standard system, you must enter **02** here). For more information see the *Other Areas* section below.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 10 \[Page 27\]](#).

1. Procurement quantities can be planned relatively effectively by means of planned independent requirements. It is possible to use information from the sales forecast, or from the Sales Information System, or other planning tools to plan production quantities. This means that production and procurement of the required components is triggered before receipt of sales orders.
2. Procurement is determined by planned independent requirements only. This lends itself to a smoothing of production, which means you can create a smooth production plan that cannot be affected by irregular sales orders.
3. An accurate availability check is performed according to ATP logic during sales order processing.
4. Sales orders can be displayed for information purposes only; they do not affect production quantities. Goods are sold from stock in this strategy.
5. The planned independent requirements are reduced at goods issue for the delivery. This means that you can compare the planned independent requirements situation with the actual customer requirements.
6. Planned independent requirements that are left unreduced increase the warehouse stock of the finished product and cause procurement to be decreased or not to take place at all in the next period, due to the netting.
7. If you want the system to reduce future planned independent requirements when it makes withdrawals for unplanned sales orders, you must maintain the appropriate consumption period. See [Consumption Strategies and Logic \[Page 154\]](#) for more information.

Net Requirements Planning (10)**Other Areas****Availability Check**

You must use an availability check that checks **without** RLT. See [Availability Check \[Page 157\]](#).

To switch off the display of the orders, set the *No MRP* indicator to **2** in Customizing (choose *Sales and Distribution* → *Basic Functions* → *Availability Check and Transfer of Requirements* → *Transfer of Requirements* → *Define Requirements Classes*).



Do not leave the *No MRP* indicator field blank. If the requirement is transferred, the consequences may be serious.

This IMG activity is linked to **LSF** in Customizing under *Sales and Distribution* → *Basic Functions* → *Availability Check and Transfer of Requirements* → *Transfer of Requirements* → *Define requirements types*.

Sample Scenario: Strategy 10

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat3>.

Stage 1: Demand Management

1. In this scenario, planned independent requirements are created as follows for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#).

Period indicator	Reqmts date	Planned qty	Value
T (= day)	<reqdat1>	100	10,000.00
T (= day)	<reqdat2>	100	10,000.00
T (= day)	<reqdat3>	100	10,000.00

The system finds requirements type **LSF** because the strategy group has been set to **10**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).

2. The requirements are passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	IndReq	LSF	100 -	100 -
<reqdat2>	IndReq	LSF	100 -	200 -
<reqdat3>	IndReq	LSF	100 -	300 -

Stage 2: Procurement Before Sales

1. Procurement requisitions are created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
------	-------------	------------------	-----------------------------------	--------------------

Sample Scenario: Strategy 10

<today>	Stock			0
<reqdat1>	PIOrd.	1234/Stck	100	100
<reqdat1>	IndReq	LSF	100 -	0
<reqdat2>	PIOrd.	1235/Stck	100	100
<reqdat2>	IndReq	LSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100	100
<reqdat3>	IndReq	LSF	100 -	0

These procurement requisitions are the starting point for production or external procurement. Various possibilities exist for handling the procurement process in the R/3 System. One option is to convert the planned order into a production order, then release the production order and a goods receipt of the yield quantity. It is also possible, however, to use returns or other goods movements for make-to-stock production.

2. After goods receipt for the order, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			100
<reqdat1>	IndReq	LSF	100 -	0
<reqdat2>	PIOrd.	1235/Stck	100 +	100
<reqdat2>	IndReq	LSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	LSF	100 -	0

Stage 3: Sales Order

1. A sales order is created for 90 units (Logistics → Sales and distribution → Sales → Order → Create).

Note the following:

- It is possible to confirm any quantity up to the stock quantity (100 pieces in this example) under *Edit* → *Check availability*.
- The system will find the requirement type **KSL** (under the *Procurement type* tab title) because the strategy group has been set to **10** and it is not possible to select another requirement type. The [table of planning strategy assignments \[Page 147\]](#) shows this mechanism.
- The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**.

Sample Scenario: Strategy 10

- After the sales order has been entered, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			100
<today>	Order	327/010/01	90 -	
<reqdat1>	IndReq	LSF	100 -	0
<reqdat2>	PIOrd.	1235/Stck	100 +	100
<reqdat2>	IndReq	LSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	LSF	100 -	0

- In **net requirements planning** according to strategy 10, the order does not create a requirement; the sales order is displayed, but does not generate planned orders. In the above table, you can see that the order does not reduce the **Available quantity** in the right-hand column which remains at 100 pieces. When you perform the availability check (in the sales order or in the stock/requirements list, choose *List* → *Calculate ATP quantity*), only 10 pieces are available.
- The planned quantity is still 100 pieces. The source of the requirement is the independent requirement alone. The planned independent requirement is unchanged, and no allocation is carried out.

Stage 4: Procurement After Sales

This stage does not apply to this strategy.

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

After goods issue for the delivery (*Logistics* → *Sales and distribution* → *Shipping* → *Delivery* → *Create*), the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			10
<reqdat1>	IndReq	LSF	10 -	0
<reqdat2>	PIOrd.	1235/Stck	100 +	100
<reqdat2>	IndReq	LSF	100 -	0
<reqdat3>	PIOrd.	1236/Stck	100 +	100
<reqdat3>	IndReq	LSF	100 -	0

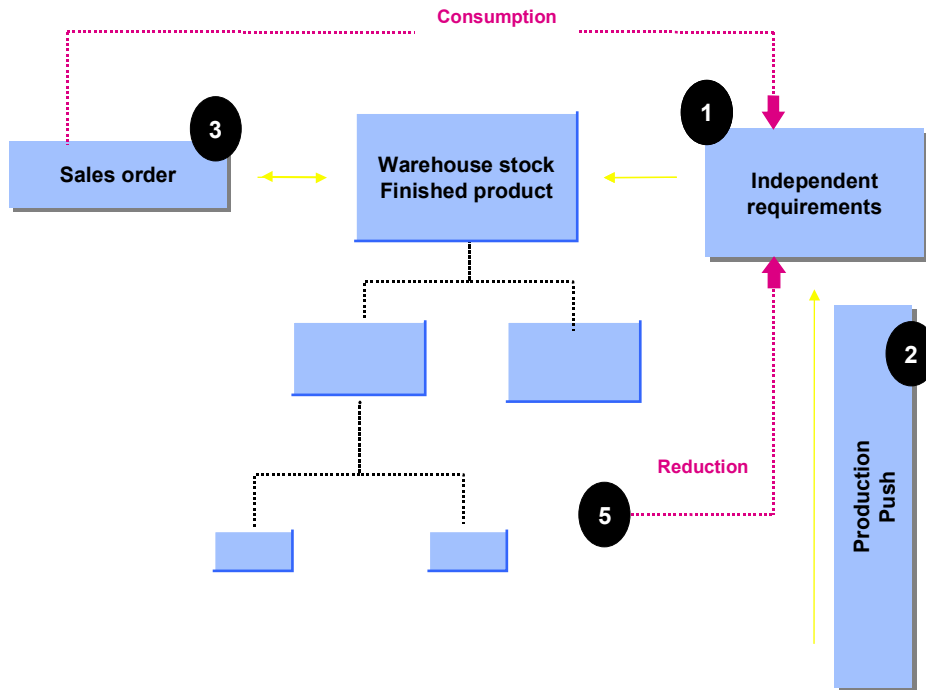
Sample Scenario: Strategy 10

The planned independent requirement is reduced during processing of the goods issue. Old quantities can still be retrieved by using either *Goto → Schedule line history* in Demand Management, or by using the total requirements list (*Evaluations → Display total requirements* from the Demand Management menu). The quantities issued are displayed in the *Withdrawal quantity* field.

The system always reduces the oldest planned independent requirements unless the consumption fields (*Consumption mode, Fwd consumption per., Bwd consumption per.*) are maintained in the material master or in the MRP group.

Comparing Strategies 10 and 40

[Net Requirements Planning \(10\) \[Page 24\]](#) and [Planning with Final Assembly \(40\) \[Page 12\]](#), are similar in certain areas. The following graphic applies to both strategies:



The following table describes the **differences** between the two strategies:

Strategy	10	40
Customer requirements passed on to production	No	Yes
This means...	... sales orders do not influence production	... sales orders that exceed planned independent requirements can influence production
	... the main objective is to ensure smooth production	... the most important factor here is the ability to react flexibly to customer demand
Planned independent requirements allocated during sales order processing	No	Yes
Planned independent requirements reduced at goods issue for delivery	Yes	Yes

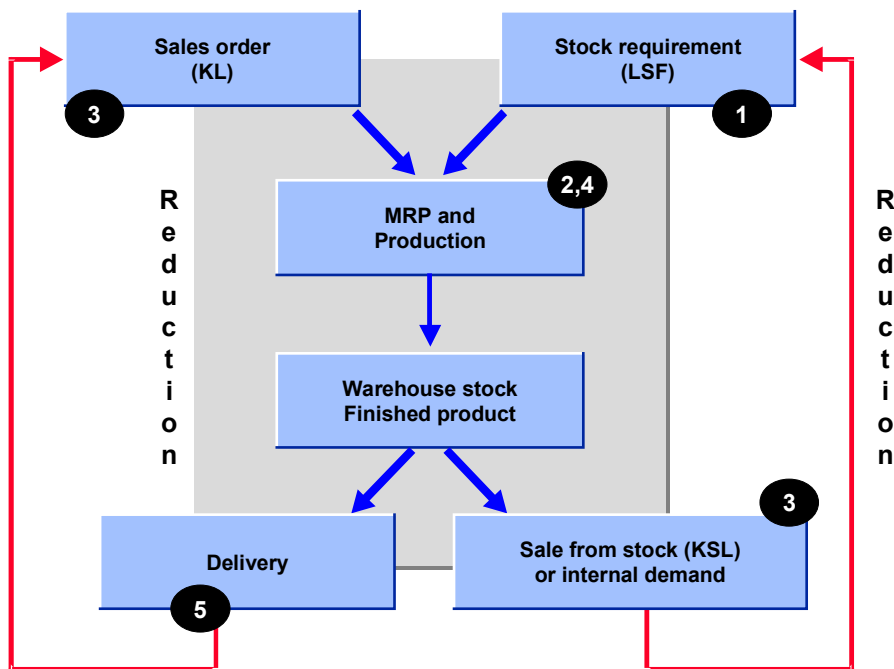
Combining Strategies 10 and 30

Combining Strategies 10 and 30

Prerequisites

You might want to create a new strategy group that combines the strategies [Net Requirements Planning \(10\) \[Page 24\]](#) and [Production by Lot Size \(30\) \[Page 20\]](#). This can be useful in the following situations:

- You have a few customers who demand relatively large quantities at the same time.
- There is relatively low demand from other customers and/or from internal customers, such as cost centers, which should be met using lot size optimization.



Procedure

To set up this strategy, proceed as follows:

1. [Combine strategy 10 with strategy 30 in the IMG for Demand Management under Planned Independent Requirements → Planning Strategy → Define strategy group.](#)
2. [When defining the strategy group, use the planning strategy that you use most in your sales orders as the Main planning strategy.](#)
3. [Maintain a material master with this new strategy group.](#)

Result

You can now sell this material either way.

- If you maintain requirements type **KL** in the sales order, the process flow will be the same as for production by lot size (30).

Combining Strategies 10 and 30

- If you maintain requirements type **KSL** in the sales order, the process flow will be the same as for net requirements planning (10).

You can change the requirements type by selecting the *Procurement type* tab title in the sales order menu.

Gross Requirements Planning (11)

Gross Requirements Planning (11)

Purpose

The make-to-stock strategy **gross requirements planning** is particularly useful in mass production environments; it is often combined with repetitive manufacturing. This strategy is particularly useful if you need to produce, regardless of whether you have stock or not. For instance, steel or cement producers might want to use this strategy because they cannot shut down production; a blast furnace or a cement factory must continue to produce, even if this means having to produce to stock.

This strategy is also frequently used if there is a *Material Requirements Planning* system in a legacy system that needs to be linked to R/3 which serves as a production execution system. The legacy system calculates a specific production plan, which has to be executed, regardless of the stock situation in R/3.

Examples from Industry

Heavy-duty industries such as steel manufacturing (blast furnace) and the cement industry.

Prerequisites

You need to maintain the following master data for the finished product:

- Maintain strategy group **11** on the *MRP* screen.
- Set the *Mixed MRP* indicator to **2** on the *MRP* screen.
- Maintain the item category group (for example, **NORM**) on the *Sales Organization* screen.
- Maintain the *Availability check* field so that you perform an availability check without the replenishment lead time (checking group **02** in the standard system). For more details, see the *Other Areas* section in [Production by Lot Size \(30\) \[Page 20\]](#).

Process Flow

For a detailed example of the entire process, see [Sample Scenario: Strategy 11 \[Page 36\]](#).

This planning strategy is to some extent similar to [Net Requirements Planning \(10\) \[Page 24\]](#). However, the following differences exist:

Strategy	10	11
Stock is taken into account	Yes	No
Reduction of planned independent requirements takes place during goods issue for the delivery	... goods receipt for a production order (discrete production), for a planned order (repetitive manufacturing), or for a purchase order (trading goods).

Gross Requirements Planning (11)

Gross requirements planning also has the following features in common with net requirements planning (10):

- Production quantities can be planned relatively effectively by means of planned independent requirements. It is possible to use information from the Sales Information System, flexible planning, or other planning tools to plan production quantities. This means that production and procurement of the required components is triggered before the sales order stage.
- Individual sales orders, which can be somewhat irregular, do not affect production.
- An accurate availability check is performed according to ATP logic during sales order processing.
- It is possible to perform a lot size "optimization" during planning so that you always plan convenient lot sizes in Demand Management or during the MRP run using lot size and/or rounding keys.

Other Areas**Availability Check**

You must work with an availability check that checks **without** checking the replenishment lead time. See [Availability Check \[Page 157\]](#).

Sample Scenario: Strategy 11

Sample Scenario: Strategy 11

Process Flow

This example is based on a production plan in which 100 pieces are planned for each requirements date — <reqdat1>, <reqdat2>, and <reqdat1>.

Stage 1: Demand Management

1. In this scenario, planned independent requirements are created as shown in the following table for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#).

Period indicator	Reqmts date	Planned qty	Value
T (= day)	<reqdat1>	100	10,000.00
T (= day)	<reqdat2>	100	10,000.00
T (= day)	<reqdat3>	100	10,000.00

The system finds requirements type **BSF** because the strategy group has been set to **11**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).

2. The requirements are passed on to MRP. The stock/requirements list (*Logistics* → *Production* → *MRP* → *Evaluations* → *Stock/reqmts list*) displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	-----> Gross reqmts plan			
<reqdat1>	IndReq	BSF	100 -	100 -
<reqdat2>	IndReq	BSF	100 -	200 -
<reqdat3>	IndReq	BSF	100 -	300 -

Entry of the independent requirements is very similar to that in strategy 10 (net requirements planning). The only difference is that the requirements have requirements type **BSF** because the strategy group has been set to **11**. See the table of [planning strategy assignments \[Page 147\]](#).



Note there is now a special segment in the stock/requirements list; this is used for planning purposes only.

Stage 2: Procurement Before Sales

1. Procurement requisitions are created in the MRP run (*Logistics* → *Production* → *MRP* → *Total planning*). The stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	-----→ Gross reqmts plan			
<reqdat1>	PIOrd.	0001234/Stck	100	100
<reqdat1>	IndReq	BSF	100 -	0
<reqdat2>	PIOrd.	0001235/Stck	100	100
<reqdat2>	IndReq	BSF	100 -	0
<reqdat3>	PIOrd.	0001236/Stck	100	100
<reqdat3>	IndReq	BSF	100 -	0

These procurement requisitions are the starting point for production or external procurement. Various possibilities exist for handling the procurement process in the R/3 System. One option would be to convert the planned order into a production order, then release the production order and a goods receipt of the yield quantity. It is also possible, however, to use returns or other goods movements for make-to-stock production.

2. After goods receipt of 90 pieces of the order (you can work with all kinds of orders, such as production orders, run schedule headers in repetitive manufacturing, and purchase orders), the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			90
<today>	-----→ Gross reqmts plan			
<reqdat1>	PrdOrd.	1000060/PP01/PD	10	10
<reqdat1>	IndReq	BSF	10 -	0
<reqdat2>	PIOrd.	0001235/Stck	100	100
<reqdat2>	IndReq	BSF	100 -	0

Sample Scenario: Strategy 11

<reqdat3>	PIOrd.	0001236/Stck	100	100
<reqdat3>	IndReq	BSF	100 -	0

3. The Demand Management screen displays the following information:

Period indicator	Reqmts date	Planned qty	Withdrawal qty
T (= day)	<reqdat1>	10	90
T (= day)	<reqdat2>	100	
T (= day)	<reqdat3>	100	

The planned independent requirement is reduced during processing of the goods receipt. Old quantities can still be accessed via *Goto* → *Schedule line history*, or by using the total requirements list (*Evaluations* → *Display total requirements*) in Demand Management. The quantities received are displayed in the *Withdrawal qty* field.

The system always reduces the oldest planned independent requirements unless the consumption fields (*Consumption mode*, *Fwd consumption per.*, *Bwd consumption per.*) are maintained in the material master or in the MRP group.

The Demand quantity as seen in the planned independent requirements, is reduced when the goods receipt is posted for the production order. To view the original demand quantity in Demand Management (choose *Logistics* → *Production* → *Master Planning* → *Demand Management* → *Planned Ind. Reqmnts* → *Display*) choose *Goto* → *schedule line history*, or choose *Environment* → *Display total reqmnts*. In this view the total demand is the sum of the goods movement quantity plus the Total quantity.

Stage 3: Sales Order

1. You create a sales order by choosing *Logistics* → *Sales and distribution* → *Sales* → *Order* → *Create*).

Note the following:

- It is possible to confirm any quantity up to the stock quantity (100 pieces in this example). Choose *Goto* → *Item* → *Schedule lines* → *Quantities/dates*.
 - The system finds the requirement type **KSL** (under the *Procurement* tab title) because the strategy group has been set to **11**.
The [Table of Planning Strategy Assignments \[Page 147\]](#) shows this mechanism.
 - The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**.
2. After the sales order has been entered, the stock/requirements list displays the following information:

Sample Scenario: Strategy 11

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			90
<today>	Order	0000337/0010/001	90 -	
<today>	-----> Gross reqmts plan			
<reqdat1>	PrdOrd.	1000060/pp01/PD	10	10
<reqdat1>	IndReq	BSF	10 -	0
<reqdat2>	PIOrd.	0001235/Stck	100	100
<reqdat2>	IndReq	BSF	100 -	0
<reqdat3>	PIOrd.	0001236/Stck	100	100
<reqdat3>	IndReq	BSF	100 -	0

3. In strategy 11, the order does not create a requirement; it is only displayed. It is possible to hide the display of the orders as described in the *Other Areas* section of [Net Requirements Planning \(10\) \[Page 24\]](#). In the above table, you can see that the order does not reduce the **Available quantity** in the right-hand column, which remains at 90 pieces. When you perform the availability check (in the sales order or in the stock/requirements list by choosing *List → Calculate ATP quantity*), however, no stock is available.

Stage 4: Procurement After Sales

This does not apply to this strategy.

Stage 5: Goods Issue for Delivery

After delivery (choose *Logistics → Sales and distribution → Shipping → Delivery → Create*) and goods issue, the stock/requirements list shows only the remaining planned independent requirements and their associated planned orders.

Planning w/o Final Assembly and w/o MTO (52)

Planning w/o Final Assembly and w/o MTO (52)

Purpose

This strategy, along with [Planning w/ a Planning Material and w/o MTO \(63\) \[Page 48\]](#), allows you to procure components on the basis of planned independent requirements. Production of the finished product, however, is based on actual sales orders. This planning strategy ensures that you can react quickly to customer requirements, even if the finished product has a long overall lead time. You can avoid the main value-added process until you have a customer.



This strategy is very similar to strategy 50, which uses make-to-order production. For more information on the differences between these two strategies, see [Planning Without Final Assembly \(50\) \[Page 81\]](#).

Prerequisites

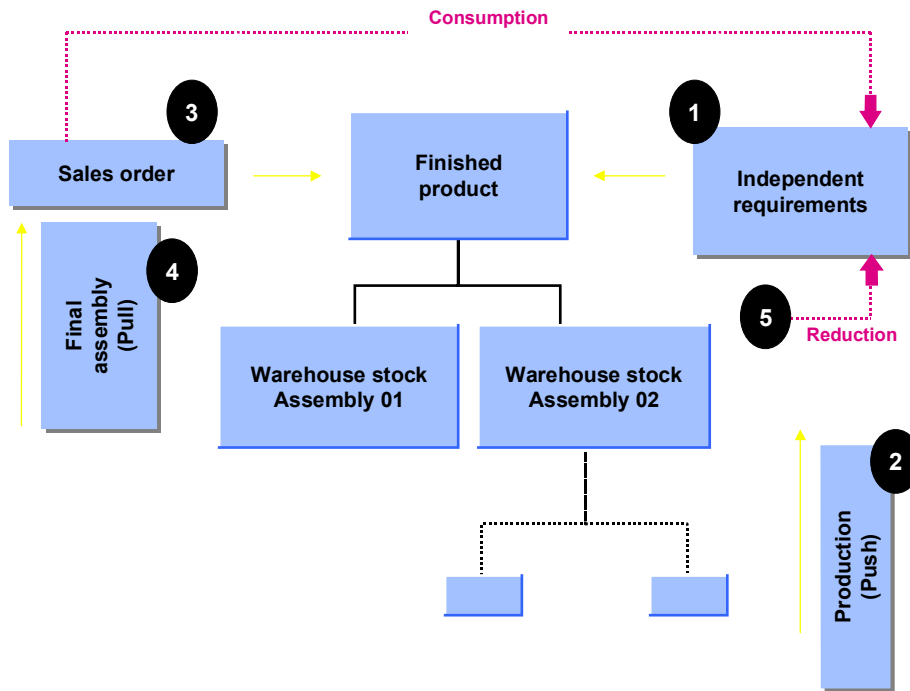
You must maintain the following master data for the finished product:

- Maintain strategy group **52** on the *MRP* screen.
- Set the lot size key **EX** must be set in the *MRP* screen because lot size optimization would be incompatible with the allocation logic, which could result in over-planning and incorrect result in the ATP check. You also must ensure that no rounding profile or rounding values are taken into account.
- Maintain consumption parameters (*Consumption mode, Bwd consumption, Fwd consumption*) so that the independent requirements can be found. For more information, see [Consumption Strategies and Logic \[Page 154\]](#).
- Maintain the item category group (for example, **NORM**) on the *Sales Organization* screen.

A BOM is required for the finished product. There are no major implications for the BOM components. However, it is important to note the following:

- You need to set the MRP type to **P*** (or **M***) on the *MRP* screen to plan the components in MRP.
- You may want to consider setting the *Individual/coll.* Indicator to **2** on the *MRP* screen as a starting point for your master data setup.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 52 \[Page 43\]](#).

1. Production quantities can be planned relatively effectively by means of planned independent requirements for the finished product. It is possible to use information from the sales forecast, or from the Sales Information System, or other planning tools to plan production quantities. Only the procurement of the component is triggered before the sales order stage. Final assembly takes place after a sales order has been entered.
2. The planned independent requirements are consumed during the sales order stage. This means that you can compare the planned independent requirements situation with the actual customer requirements situation.
3. An availability check is performed on the basis of the planned independent requirements.
4. Demand from sales orders is passed on to production and triggers production after the sales order stage, even if insufficient components are planned. The sales orders, however, cannot be confirmed if there is insufficient coverage of components. For more information, see [Coping with Insufficient Coverage of Components \[Page 18\]](#).
5. Planned independent requirements of the finished goods that are left unconsumed increase the warehouse stock of the components and cause procurement to be decreased or not to take place at all in the next period. This procedure is known as "netting."
6. From the costing perspective, this strategy is a make-to-stock strategy, in contrast to strategy 50, which is make-to-order. This means that stock of the finished material is not linked to each customer order. This strategy does not take stock that exceeds the planned independent requirements (unplanned stock due to, for example, customer

Planning w/o Final Assembly and w/o MTO (52)

returns or over-production) into account, when creating a sales order. Stock for finished goods should be handled through an exception process.

Other Areas

Availability Check

In this strategy, there is only an availability check against planned independent requirements. A material is considered to be available if a planned independent requirement can be consumed. See [Availability Check \[Page 157\]](#).

Stocking Level for Components

See [Stockkeeping at Different BOM Levels \[Page 76\]](#).

Selling Unplanned Stock

Unplanned stock (returns or unplanned production quantities such as overdeliveries) is not taken into account in the availability check, and is therefore not automatically considered for sales.

You can ensure that this stock is sold by changing the requirements type (from **KSVS** to **KL** or **KSV**, for example) in the sales order menu under *Procurement type*.

You must also add an alternative strategy (either [30 \[Page 20\]](#) or [40 \[Page 12\]](#) in this case) to strategy group 52 in the IMG for Production (choose *Master Planning* → *Demand Management* → *Planned Independent Requirements* → *Planning Strategy* → *Define strategy group*).

Sales personnel must be informed of this unplanned stock.

Sample Scenario: Strategy 52

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat1>.

The BOM structure for this example has a parent material **SZ-52** and a component **ROH52A**. The BOM has an item quantity of 1.

Stage 1: Demand Management

1. Planned independent requirements are created for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#).

The system finds requirements type **VSE** because the strategy group has been set to **52**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).

2. The requirements are passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) for the finished product displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	IndReq	VSE	100 -	100 -
<reqdat2>	IndReq	VSE	100 -	200 -
<reqdat3>	IndReq	VSE	100 -	300 -

Stage 2: Procurement Before Sales

1. Procurement requisitions are created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list for the finished product displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100

Sample Scenario: Strategy 52

<reqdat1>	IndReq	VSE	100 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSE	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSE	100 -	0

These procurement requisitions are the starting point for production or external procurement. Various possibilities exist for handling the procurement process in the R/3 System. The following factors, however, are important for this strategy:

- Stock at finished product level is not taken into account for production.
 - The planned orders are not yet “real” because production of the finished product must be executed after receipt of the sales orders. The planned orders have order type (VP). It is impossible to convert these (VP) planned orders into production orders, or to use them in a repetitive manufacturing environment. The *Conversion* field in the display of the planned order is not set, which indicates that it is not possible to produce this planned order.
2. The MRP run also creates procurement requisitions for the components. In this example, the stock/requirements list for the component ROH52A displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	PIOrd.	1237/Stck	100	100
<reqdat1>	DepReq	SZ-52	100 -	0
<reqdat2>	PIOrd.	1238/Stck	100	100
<reqdat2>	DepReq	SZ-52	100 -	0
<reqdat3>	PIOrd.	1239/Stck	100	100
<reqdat3>	DepReq	SZ-52	100 -	0

3. The main objective of this strategy has now been reached: procurement for the components has been triggered, even without sales orders, due to Demand Management alone. Procurement of the components can occur in a variety of ways. Here we are assuming that a goods receipt (for a purchase order, for example) takes place. The stock/requirements list for all components of the material displays the following information:

Sample Scenario: Strategy 52

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			300
<reqdat1>	DepReq	SZ-52	100 -	200
<reqdat2>	DepReq	SZ-52	100 -	100
<reqdat3>	DepReq	SZ-52	100 -	0

Stage 3: Sales Order and Allocation

1. A sales order for the parent material is created.
 - The system will find the requirement type **KSVS** because the strategy group has been set to **52**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).
 - It is possible to confirm a quantity that has been previously planned (100 pieces for each schedule line, in this example). The header text that says *Assignment of Planned Independent Requirements* indicates that this is not a check according to ATP logic but rather an availability check based on planned independent requirements.
 - The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**.

Suppose that for this example an order with a quantity of 90 pieces is entered with a required delivery date of today. This order can be confirmed after the first planned independent requirement date <reqdat1> if the consumption parameters have been defined accordingly and this date can be found. For more information, see [Consumption Strategies and Logic \[Page 154\]](#).

2. After entry of the sales order, the stock requirements list for the parent material displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Order	000333/0010/001	90 -	
<today>	→ Planning w/o assembly			90 -
<reqdat1>	PIOrd.	1234/IndR	100	100
<reqdat1>	IndReq	VSE	10 -	90
<reqdat2>	PIOrd.	1235/IndR	100	190
<reqdat2>	IndReq	VSE	100 -	90
<reqdat3>	PIOrd.	1236/IndR	100	190
<reqdat3>	IndReq	VSE	100 -	90

Sample Scenario: Strategy 52**Stage 4: Procurement After Sales**

1. After a second planning run, the stock/requirements list of the parent material displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Order	000333/0010/001	90 -	90 -
<t+rlt>	PIOrd.	1237/Stck	90	0
<today>	→ Planning w/o assembly			0
<reqdat1>	PIOrd.	1234/IndR	10	10
<reqdat1>	IndReq	VSE	10 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSE	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSE	100 -	0

The planned order (“Stck”) for the parent material can now be converted to either a production order, a process order, or allow backflushing in the repetitive manufacturing process. This triggers the *production after sales order* stage. Production of this material can be performed quickly because all the necessary components are already available.

2. After creation and release of the production order (for the parent product) the stock/requirements situation remains the same. This means that the planned order is replaced by a production order.



Working with production orders is only one option for production. This process is also possible in the area of repetitive manufacturing.

At component level (ROH52x), the dependent requirements (“DepReq” in the planned order) are replaced by an order reservation (“OrdRes” in a production order).

3. Perform a Goods Receipt for the *parent* material, after production. Note the increase in available stock in the stock requirements list of this material.

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

After goods issue for the delivery (choose *Logistics* → *Sales and distribution* → *Shipping* → *Delivery* → *Create*) for the parent material, the stock/requirements list of the parent material is reset back to empty again. In other words, it only shows the planned independent requirements

Sample Scenario: Strategy 52

and the corresponding planned orders. The planned independent requirements are, of course, reduced.

Planning w/ a Planning Material and w/o MTO (63)

Planning w/ a Planning Material and w/o MTO (63)

Purpose

This strategy allows you to procure non-variable components based on the planned independent requirements of a planning material. Production of the finished product, however, is based on actual sales orders. This procedure allows you to react quickly to customer requirements, even if the finished product has a long overall lead time; you can avoid the main value-added process until you have a customer.

This strategy has the same basic features as [Planning Without Final Assembly and Without MTO \(52\) \[Page 40\]](#). In addition, more than one material can consume the planned independent requirements of one planning material.

This strategy allows you to plan the variants of one product. The term variant indicates "similar" parts; it is **not** used in the sense of variant configuration, which implies a much higher number of variants. With this strategy, for example, you can easily exchange a component in all similar BOMs.

Examples from Industry

This strategy lends itself to the planning of different sizes or packages for one product. For instance, you may want to sell a product:

- In packages containing 1 liter, 2 liters, and 1 gallon.
- In packages labeled in English, German, and Japanese.

All variants are set up as different material numbers. In addition a planning material is usually set up that consists of the non-variant components only, which means excluding the packaging materials which form the variants. All variants are linked to the planning material by means of the correct conversion factors.

The packaging materials (boxes or cartons for the different sizes or different labels) can be planned on the basis of consumption because they are not too expensive.

Prerequisites

You must maintain the following master data for the products:

Master data	'Variant' products	Planning material
Strategy group (MRP screen)	63	63
Item category group (Sales organization screen)	For example, NORM	For example, NORM
Lot size key (MRP screen)	EX	EX

Planning w/ a Planning Material and w/o MTO (63)

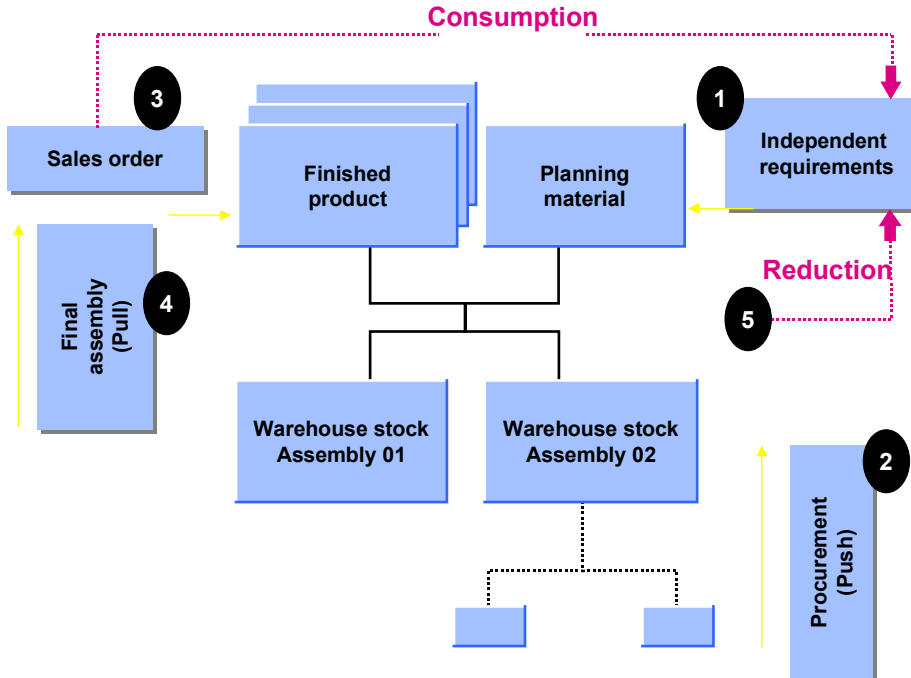
Consumption parameters (<i>Consumption mode, Bwd consumption per., Fwd Consumption per.</i>) (MRP screen)	<u>NOT</u> to be maintained, the values of the planning material are used.	Need to be maintained so that the planned independent requirements can be found. (See Consumption Strategies and Logic [Page 154])
<i>Planning material, Planning plant and Plng conv. Factor</i> (MRP screen)	Need to be maintained.	
Bill of material	Required Contains all parts	Required Contains the non-variable parts



You need to set the MRP type (on the MRP Screen) to P* or M* to plan the component in MRP.

You may want to consider setting the Individual//coll. indicator (on the MRP Screen) to 2.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 63 \[Page 51\]](#).

Planning w/ a Planning Material and w/o MTO (63)

The planning material could be sold in the same way as any variant product. However, it is generally used as an "artificial" material that contains the non-variant parts only. The BOMs of the variant products contain additional components which diversify the product.



These variant components cannot be planned exactly using this strategy.

The variant components are consumption-based.

The variant components are planned independently using a planning strategy for components.

You accept an over-planning or an under-planning of the variant components.

If your products have a high level of variance, you may want to use characteristics planning in order to automate the planning of components. See [Characteristics Planning \(56/89\) \[Page 117\]](#) for more information.

This strategy can also be used as a cross-plant version of strategy 52. See [Cross-Plant Planning \[Page 156\]](#) for more information.

Other Areas

The *Other Areas* section of [Planning Without Final Assembly and Without MTO \(52\) \[Page 40\]](#) also applies to this strategy.

Capacity Planning Using Strategy 63

This strategy is often used to manage a simple but effective method of capacity planning.

The planned independent requirements for the planning material represent a given capacity situation. All variant materials require a similar capacity and there is an allocation of given capacity with requested capacity at the order entry stage. You can easily check the capacity situation using the total requirements list.

Overplanning and Underplanning of Components

Imagine that the planning material contains the components A, B, and D. The variant material contains the components A, B, and C.

The planning material is planned with 100 pieces each month. There are therefore also dependent requirements for 100 components each month. Due to the fact that the planning material is a representation of all variants, too much is planned for component D and too little is planned for component C.

This situation is not a problem if you want to over-plan component D on purpose to have a higher stock level for it, for instance.

In most cases, however, you would avoid this situation by employing other means, that is, by not including components C or D in the BOM of the planning material. The variant parts could be planned using [Planning at Assembly Level \(70\) \[Page 58\]](#), or by simply using consumption-based variant parts.

Sample Scenario: Strategy 63

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat1>.

Stage 1: Demand Management

1. Planned independent requirements are created for the production plan. The material number of the "planning" material is entered. The expected total requirements for all variants are created. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#).

The system finds requirements type **VSEV** because the strategy group has been set to **63**.

See the [Table of Planning Strategy Assignments \[Page 147\]](#).

2. The requirements are passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) displays the following information for the planning material.

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	IndReq	VSEV	100 -	100 -
<reqdat2>	IndReq	VSEV	100 -	200 -
<reqdat3>	IndReq	VSEV	100 -	300 -

Stage 2: Procurement Before Sales

1. Procurement requisitions are created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list of the planning material displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100

Sample Scenario: Strategy 63

<reqdat1>	IndReq	VSEV	100 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSEV	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSEV	100 -	0

These procurement requisitions are the starting point for production or external procurement. Various possibilities exist for handling the actual production process. The following factors, however, are important for this strategy:

- Stock is not taken into account.
 - The planned orders are not yet "real," because the variant product cannot be produced until after receipt of the sales order. Technically speaking, the planned orders have order type (VP). It is impossible to convert these (VP) planned orders into production orders, or to use them in a repetitive manufacturing environment. The *Conversion* field in the display of the planned order is not set, which indicates that it is not possible to produce this planned order.
2. The MRP run also creates procurement requisitions for the components. The stock/requirements list for the component ROH63A, for example, is as follows:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	PIOrd.	1237/Stck	100	100
<reqdat1>	DepReq	PLANNINGMATL	100 -	0
<reqdat2>	PIOrd.	1238/Stck	100	100
<reqdat2>	DepReq	PLANNINGMATL	100 -	0
<reqdat3>	PIOrd.	1239/Stck	100	100
<reqdat3>	DepReq	PLANNINGMATL	100 -	0

3. The main objective of this strategy has now been reached: procurement for the components has been triggered, even without sales orders, based on the sales forecast from Demand Management only. Procurement of the components can occur in a variety of ways. Here we are assuming that a goods receipt (for a purchase order, for example) takes place. The stock/requirements list for all components of the planning material displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
------	-------------	------------------	-----------------------------------	--------------------

Sample Scenario: Strategy 63

<today>	Stock			300
<reqdat1>	DepReq	PLANNINGMATL	100 -	200
<reqdat2>	DepReq	PLANNINGMATL	100 -	100
<reqdat3>	DepReq	PLANNINGMATL	100 -	0

Stage 3: Sales Order and Allocation

1. A sales order for a variant material is entered
 - Suppose that, for this example, an order with a quantity of 90 pieces is entered with a required delivery date of today. This order can be confirmed after the first planned independent requirement date <reqdat1>, if :
 - The consumption parameters have been maintained correctly (*Consumption mode, Bwd consumption per., Fwd consumption per.*) in the planning material.
 - This date and the planned independent requirements can be found.

For more information, see [Consumption Strategies and Logic \[Page 154\]](#).

2. After the sales order has been entered, the stock/requirements list of the variant material looks like this:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<orderdat1>	Order	00035/0010/001	90 -	0

3. The stock/requirements list for the planning material changes as shown below because an allocation has taken place:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100
<reqdat1>	IndReq	VSEV	10 -	90
<reqdat2>	PIOrd.	1235/IndR	100	190
<reqdat2>	IndReq	VSEV	100 -	90
<reqdat3>	PIOrd.	1236/IndR	100	190

Sample Scenario: Strategy 63

<reqdat3>	IndReq	VSEV	100 -	90
-----------	--------	------	-------	----

- At component level, the requirement from the planning material has been switched to a requirement from the variant material (**SZ-63** in this example). The sum of the requirements stays the same.

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			300
<orderdat1>	DepReq	SZ-63	90 -	210
<reqdat1>	DepReq	PLANNINGMATL	10 -	200
<reqdat2>	DepReq	PLANNINGMATL	100 -	100
<reqdat3>	DepReq	PLANNINGMATL	100 -	0

Stage 4: Procurement After Sales

- After a second planning run, the stock/requirements list of the variant material is as follows:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<orderdat1>	PIOrd.	000335/Stck	90	90
<orderdat1>	Order	00035/0010/001	90 -	0

The planned order ('Stck') for the variant material can now be converted to either a production order, a process order, or allow backflushing in the repetitive manufacturing process. This triggers the *production after sales order* stage. Production of this material can now be executed quickly because all the necessary components are available.

- After creation and release of the production order (for the variant product) the stock/requirements situation remains the same. This means that the planned order is replaced by a production order.



Working with production orders is only one option for production. This process is also possible in the area of repetitive manufacturing.

At component level (ROH63x), the dependent requirements ("DepReq" in the planned order) are replaced by an order reservation ("OrdRes" in a production order).

Sample Scenario: Strategy 63

3. Perform a Goods Receipt for the "variant" material, after production. Note the increase in available stock in the stock requirements list of the variant material.

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

After goods issue for the delivery of the sales order (*Logistics → Sales and distribution → Shipping → Delivery → Create*) for the variant material, the stock/requirements list of the "variant" material is reset back to empty again. The planned independent requirements, visible in the planning material's stock requirements list, are reduced.

Strategies for Planning Components

Strategies for Planning Components

Purpose

The planning strategies explained in this section are designed for planning the procurement (production or purchasing) of components by planning the components themselves. This is particularly useful in the following cases:

- There is a variety of finished products (possibly with an irregular demand pattern where planning is not possible).
- The finished products are consumption-based.

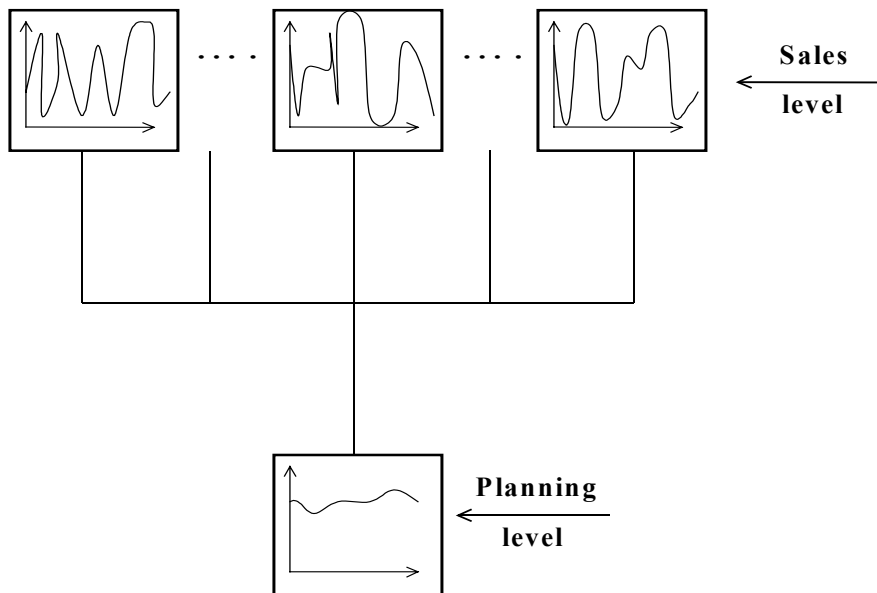
The overall purpose of planning at component level is to procure components to stock (without sales orders) in order to react to customer demand as quickly as possible.

Prerequisites

Choose a strategy for planning components, if:

- The components are not segregated; that is, they are not uniquely linked at specific orders.
- Costs should be tracked at component (material) level and **not** at order level.

Process Flow



Strategies for planning components can be used for both make-to-stock and make-to-order scenarios.



If you want to make use of a strategy for a make-to-stock planning of components in a make-to-order environment, you may want to consider setting the *Individual/coll.* indicator (on the *MRP* screen) to **2** as a starting point for your master data setup.

The planning of components has the following in common with make-to-stock strategies:

- It is possible to automate the planning stage by using information from the forecast, and passing on the results from these applications directly to Demand Management.
- Make-to-stock costing applies.
- In a make-to-stock environment, smoothing of production against customer requirements may be an important aspect.
- Strategies for planning components are usually combined with a lot size key or rounding values. In the following Sample Scenario sections, however, lot size key EX is used for the sake of simplicity.

In [Planning at Assembly Level \(70\) \[Page 58\]](#), no specific product structure of the component is required. In other words, it does not matter if the component has a BOM or not. The material can be produced in-house, or procured externally (for example, raw materials).

For information on special issues concerning procuring components using strategies 50, 52, 60, 63, and all make-to-order strategies, see [Stockkeeping at Different BOM Levels \[Page 76\]](#).

For information on how the replenishment lead time is interpreted, see [Replenishment Lead Time \[Page 78\]](#).

Planning at Assembly Level (70)

Planning at Assembly Level (70)

Purpose

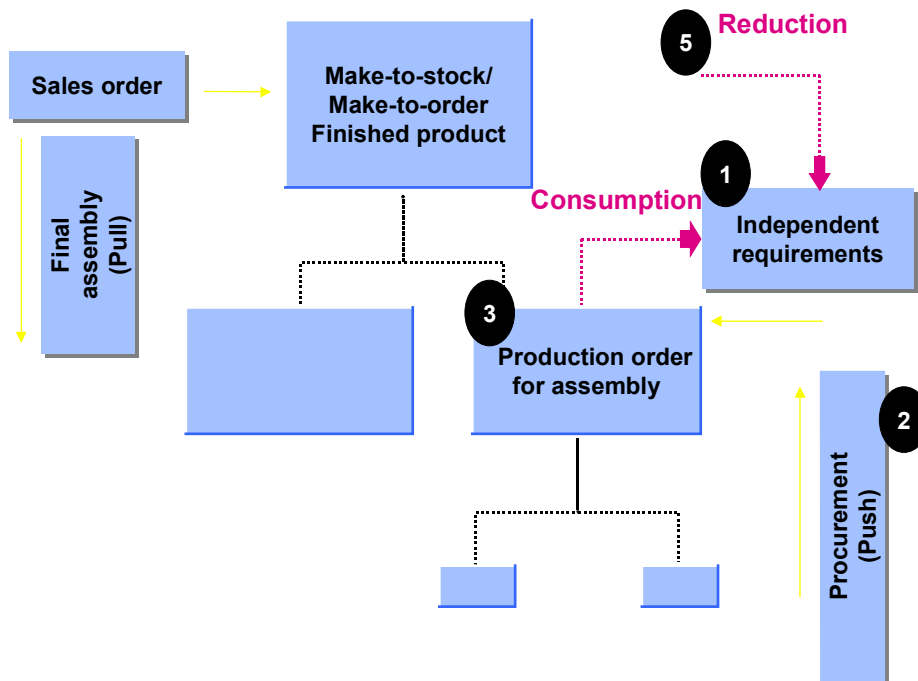
This planning strategy is particularly useful for manufacturers of products with variants if a more reliable forecast can be produced for certain assemblies than for the multitude of product variants.

Prerequisites

You must maintain the master data of the assembly as follows:

- Strategy group **70** on the *MRP* screen.
- Set the indicator for assembly planning, the *Mixed MRP* indicator, to **1** on the *MRP* screen.
- Consumption parameters (*Consumption mode*, *Bwd consumption*, *Fwd consumption* on the *MRP* screen) to allow for consumption of planned independent requirements.
- If you are using this strategy in a make-to-stock environment, you also must set the *Individual/coll. indicator* to **2** on the *MRP* screen.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 70 \[Page 60\]](#).

This strategy is very similar to [Planning with Final Assembly \(40\) \[Page 12\]](#). However, planned independent requirements are consumed by production order requirements (or schedule lines in repetitive manufacturing) and not to requirements of sales orders. Although all graphics in this

Planning at Assembly Level (70)

documentation show this component one level below the finished product, the component can appear on any BOM level.

1. Stock for the assembly usually exists.
2. Planned independent requirements are entered at assembly level. Procurement (planned by means of the planned independent requirements) is therefore triggered before the production order stage (or schedule line in repetitive manufacturing).
3. The planned orders for the assembly/components are convertible.
4. Procurement smoothing according to order demand is possible. In this strategy, however, the ability to react flexibly to customer requirements is more important.
5. An accurate availability check is performed according to ATP logic during production order processing. See [Availability Check \[Page 157\]](#).
6. Requirements from production orders (or schedule lines) are passed on to production and can lead to changes to procurement after the sales order stage, if the order quantities exceed the planned independent requirement quantities. However the order quantities cannot be confirmed if there is insufficient coverage of components. The system automatically adjusts the master plan. For more information see [Coping with Insufficient Coverage of Components \[Page 18\]](#).
7. The planned independent requirements are consumed during the production stage. This means that you can compare the planned independent requirements situation with the actual order requirements.

Unconsumed planned independent requirement quantities increase the warehouse stock of the component, and cause procurement to be decreased or not to take place at all in the next period. This procedure is called "netting."

Sample Scenario: Strategy 70

Sample Scenario: Strategy 70

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat3>.

Stage 1: Demand Management

1. In this scenario, planned independent requirements are created as follows for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements without a Reference \[Page 202\]](#).

Period indicator	Reqmts date	Planned qty	Value
T (= day)	<reqdat1>	100	10,000.00
T (= day)	<reqdat2>	100	10,000.00
T (= day)	<reqdat3>	100	10,000.00

The system will find requirements type **VSFB** because the strategy group has been set to **70**. See the [table of planning strategy assignments \[Page 147\]](#).

2. The requirements are passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	IndReq	VSFB	100 -	100 -
<reqdat2>	IndReq	VSFB	100 -	200 -
<reqdat3>	IndReq	VSFB	100 -	300 -

Stage 2: Procurement Before Use in Production

1. A procurement requisition is created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
------	-------------	------------------	-----------------------------------	--------------------

Sample Scenario: Strategy 70

<today>	Stock			0
<reqdat1>	PIOrd.	123/STCK	100	100
<reqdat1>	IndReq	VSFB	100 -	0
<reqdat2>	PIOrd.	124/STCK	100	100
<reqdat2>	IndReq	VSFB	100 -	0
<reqdat3>	PIOrd.	125/STCK	100	100
<reqdat3>	IndReq	VSFB	100 -	0

This procurement requisition is the starting point for production or external procurement. You have a variety of options for handling the procurement process in the R/3 System. One possibility would be to convert the planned order into a production order, release of the production order and a goods receipt of the yield quantity. It is also possible, however, to use returns or other goods movements for make-to-stock production.

2. After goods receipt for the order, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			200
<reqdat1>	IndReq	VSFB	100 -	100
<reqdat2>	IndReq	VSFB	100 -	0
<reqdat3>	PIOrd.	125/SDeb	100	100
<reqdat3>	IndReq	VSFB	100 -	0

Stage 3: Production Order and Allocation

A production order that uses the planned component is created (*Logistics → Production → Production control → Order → Create*).

An availability check is performed in the order (*Component → Availability → Check availability*).



In this example, it is assumed that production is 50 pieces of the material and the material has an in-house production time of zero.

A popup appears containing the following information:

Requirements date	<today>
Requirements quantity	50

Sample Scenario: Strategy 70

Availability check (checking group)	02
ATP quantity	200
Confirmation date	<today>
Confirmation quantity	50

This availability check is always performed according to ATP logic. See [Availability Check \[Page 157\]](#).

The production order quantity, which is not visible in the production order, is allocated to the component quantity. You can, however, control the allocation in the stock/requirements list or in the total requirements list. The total requirements list displays the following information:

Requirements type	Date	Allocated quantity	Total quantity
VSFB			300
	<reqdat1>		100
RESE	<reqdat1>	50	
	<today>	50	
	<reqdat2>		100
	<reqdat3>		100

After creation of the production order, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			200
<today>	OrdRes	SZ-10	50 -	150
<reqdat1>	IndReq	VSFB	50 -	100
<reqdat2>	IndReq	VSFB	100 -	0
<reqdat3>	PIOrd.	125/STCK	100	100
<reqdat3>	IndReq	VSFB	100 -	0

Any parent material that consists of this component is automatically allocated to this plan. In practice, there are several header materials (like SZ-10 in this example) that allocate this material.

Stage 4: Procurement After Production

This does not apply to this strategy.

Stage 5: Goods Issue for Production Order

After goods issue for the production order (*Logistics → Materials management → Inventory management → Goods movement → Goods issue*), the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			150
< reqdat1>	IndReq	VSFB	50 -	100
<reqdat2>	IndReq	VSFB	100 -	0
<reqdat3>	PIOrd.	125/STCK	100	100
<reqdat3>	IndReq	VSFB	100 -	0

Planning at Phantom Assembly Level (59)

Planning at Phantom Assembly Level (59)

Purpose

This strategy can be used for a set of components that have the following features:

- Always assembled together in specific finished products.
- Should be planned together.
- Do not make up an assembly. In other words, they constitute a **phantom** assembly.

Prerequisites

You must maintain the master data of the phantom assembly as follows:

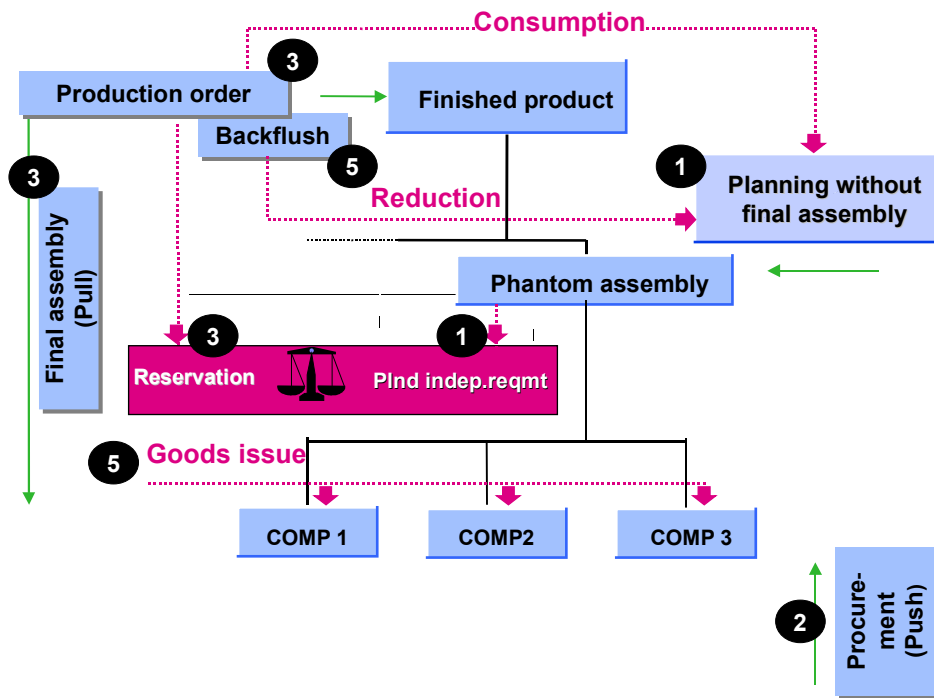
- Strategy group **59** on the *MRP* screen.
- Set the indicator for assembly planning, the *Mixed MRP* indicator, to **1** on the *MRP* screen.
- Consumption parameters (*Consumption mode*, *Bwd consumption*, *Fwd consumption* on the *MRP* screen) to allow for consumption of planned independent requirements.
- Set the *Special procurement* field on the *MRP* screen to **50** (phantom assembly)
- If you are using this strategy in a make-to-stock environment, you must set the *Individual/coll. indicator* is set to **2** on the *MRP* screen.

You also must set the *Backflush* field to **1** (**2** may also be possible) on the *MRP* screen of the material masters for the components of the phantom assembly.

Backflushing is essential because the components are planned with only one planned independent requirement which can only be planned correctly if all reservations are reduced at the same time. This is only possible when the goods issue for the components is posted at a later stage as in backflushing. In addition, all components of the phantom structure have to be linked to the same operation.

BOMs must be maintained for the finished products and for the phantom assembly.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 59 \[Page 66\]](#).

This strategy should be used in the following business context:

1. Component requirements can be planned relatively effectively. Procurement (planned by means of planned independent requirements) is therefore triggered before the production order stage.
2. Smoothing procurement according to order demand is possible. In this strategy, however, the ability to react flexibly to customer requirements is more important.
3. An accurate availability check is performed according to ATP logic during production order processing. An availability check at component level is possible in the production order. See [Availability Check \[Page 157\]](#).
4. Requirements from production orders (or schedule lines) are passed on to production and can lead to changes being made to procurement after the sales order stage, if the order quantities exceed the planned independent requirement quantities.
5. The planned independent requirements are consumed during the production stage. This means that you can compare the planned independent requirements situation with the actual order requirements.

In contrast to strategy 70, however, stock does **not** exist for the assembly in strategy 59, due to its 'phantom' nature.

Sample Scenario: Strategy 59

Sample Scenario: Strategy 59

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat1>.

Stage 1: Demand Management

1. Planned independent requirements are created for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#).

The system finds requirements type **VSEB** because the strategy group has been set to **59**. See the [table of planning strategy assignments \[Page 147\]](#).

2. The requirement is passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) for the phantom displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	IndReq	VSEB	100 -	100 -
<reqdat2>	IndReq	VSEB	100 -	200 -
<reqdat3>	IndReq	VSEB	100 -	300 -

Stage 2: Procurement Before Use in Production

1. Procurement requisitions are created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list for the phantom displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	--> Planning without assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100
<reqdat1>	IndReq	VSEB	100 -	0

Sample Scenario: Strategy 59

<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSEB	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSEB	100 -	0

This procurement requisition is the starting point for production or external procurement. You have a variety of options for handling the procurement process. The following factors, however, are most important in this strategy:

- At phantom assembly level, stock is not taken into account.
 - The planned orders are not yet “real” because production of the phantom assembly must be executed after receipt of the production order (or the schedule line in repetitive manufacturing). The planned orders are independent requirements with order type **VP**. This order type cannot be converted (note the *Conversion* field in the display of the planned order). This ensures that it is not possible to produce yet. It is impossible to convert these (VP) planned orders into production orders or to use them in a repetitive manufacturing environment.
2. The MRP run also creates procurement requisitions for the components of the phantom assembly (In this example, SZ-59 is the phantom assembly). The stock/requirements list for a component displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	PIOrd.	1237/Stck	100	100
<reqdat1>	DepReq	SZ-59	100 -	0
<reqdat2>	PIOrd.	1238/Stck	100	100
<reqdat2>	DepReq	SZ-59	100 -	0
<reqdat3>	PIOrd.	1239/Stck	100	100
<reqdat3>	DepReq	SZ-59	100 -	0

3. The main objective of this strategy (procurement for the components of the phantom assembly) has now been reached, even without an order. In this scenario, we assume that a goods receipt (for a purchase order, for example) takes place. The stock/requirements list for all components of the final assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
------	-------------	------------------	-----------------------------------	--------------------

Sample Scenario: Strategy 59

<today>	Stock			300
<reqdat1>	DepReq	SZ-59	100 -	200
<reqdat2>	DepReq	SZ-59	100 -	100
<reqdat3>	DepReq	SZ-59	100	0

Stage 3: Production Order and Allocation

1. A sales order is created for a finished product whose BOM uses the phantom assembly. A planned order for the finished product is created that includes (at least) the phantom assembly and the components of the phantom assembly. The requirements type of the finished product is not important.
2. After a second MRP run, the stock/requirements list for the phantom assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	50	50
<reqdat1>	IndReq	VSEB	50 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSEB	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSEB	100 -	0

The independent requirements for the phantom assembly have been consumed, resulting in reduction of the planned independent requirements.

3. A reservation was therefore created one level lower, shifting the source of the requirement from the independent requirement to the sales order. The stock/requirements list of the component of the phantom assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			300
<today>	Ord.Res	SZ-59	50 -	250
<reqdat1>	DepReq	SZ-59	50	200

Sample Scenario: Strategy 59

<reqdat2>	DepReq	SZ-59	100 -	100
<reqdat3>	DepReq	SZ-59	100 -	0

Today's dependent requirement was created by the planned order for the finished product (containing the phantom assembly and the component(s) of the phantom assembly). The other dependent requirements were created by the independent requirements.

4. Now a production order is created for the finished product (*Logistics → Production → Production control → Order → Create*).
 - An availability check can be performed for all components of the order (*Component → Availability → Check availability*). For more information, refer to [Availability Check \[Page 157\]](#).
 - The source of a requirement for a component of the phantom assembly is shifted from the planned order to a production order.

Stage 4: Procurement After Production

This does not apply for this strategy.

Stage 5: Goods Issue for Production Order

After goods issue for the production order (choose *Logistics → Production → Prod. Control → Confirmation*), the stock/requirements list for the phantom assembly looks the same as in Stage 3.

The stock/requirements list for the components of the phantom assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			250
<reqdat1>	DepReq	SZ-59	50	200
<reqdat2>	DepReq	SZ-59	100 -	100
<reqdat3>	DepReq	SZ-59	100 -	0



It is vital that you use backflushing when withdrawing the components.

Planning w/o Final Assembly at Assembly Level (74)

Planning w/o Final Assembly at Assembly Level (74)

Purpose

This planning strategy is particularly useful for manufacturers of products with variants if a more reliable forecast can be produced for certain assemblies than for the multitude of product variants.

Prerequisites

You must maintain the master data at the assembly level as follows:

- Strategy group **74** on the *MRP* screen.
- Set the indicator for assembly planning, the *Mixed MRP* indicator, to **3** on the *MRP* screen.
- Consumption parameters (*Consumption mode*, *Bwd consumption*, *Fwd consumption* on the *MRP* screen) to allow for consumption of planned independent requirements.
- If you are using this strategy in a make-to-stock environment, you also must set the *Individual/coll. indicator* to **2** on the *MRP* screen.

You must maintain the master data for the component of the assembly as follows:

- Set the *Individual/coll. indicator* to **2** on the *MRP* screen.

You must maintain a BOM for the assembly and its components.

Process Flow

For a detailed example of the entire process, see [Sample Scenario 74 \[Page 72\]](#).

This strategy is very similar to [Planning w/o Final Assembly \(50\) \[Page 81\]](#) and [Planning w/o Final Assembly and w/o MTO \(52\) \[Page 40\]](#). However, planned independent requirements are consumed by production order requirements (or schedule lines in repetitive manufacturing) and not to requirements of sales orders.

This strategy should be used in the following business context:

1. Stock for the assembly should not exist.
2. Planned independent requirements are entered at assembly level. Procurement (planned by means of the planned independent requirements) is therefore triggered before the production order stage (or schedule line in repetitive manufacturing).
3. The planned orders for the assembly/components are not convertible.
4. Requirements from production orders (or schedule lines) are passed on to production and can lead to changes to procurement after the sales order stage, if the order quantities exceed the planned independent requirement quantities. However the order quantities cannot be confirmed if there is insufficient coverage of components. The system automatically adjusts the master plan. For more information see [Coping with Insufficient Coverage of Components \[Page 18\]](#).
5. The planned independent requirements are consumed during the production stage. This means that you can compare the planned independent requirements situation with the actual order requirements.

Sample Scenario 74

Sample Scenario 74

Process Flow

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat1>.

Stage 1: Demand Management

1. Planned independent requirements are created for the production plan. For information on how to create planned independent requirements, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#) or [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#).

The system finds requirements type **VSEM** because the strategy group has been set to **74**. See the [table of planning strategy assignments \[Page 147\]](#).

2. The requirement is passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) for the assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	IndReq	VSEM	100 -	100 -
<reqdat2>	IndReq	VSEM	100 -	200 -
<reqdat3>	IndReq	VSEM	100 -	300 -

Stage 2: Procurement Before Use in Production

1. Procurement requisitions are created in the MRP run (*Logistics → Production → MRP → Total planning*). The stock/requirements list for the assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100
<reqdat1>	IndReq	VSEM	100 -	0

Sample Scenario 74

<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSEM	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSEM	100 -	0

This procurement requisition is the starting point for production or external procurement. You have a variety of options for handling the procurement process. The following factors, however, are most important in this strategy:

- At assembly level, stock is not taken into account.
 - The planned orders are not yet “real” because production of the assembly must be executed after receipt of the production order (or the schedule line in repetitive manufacturing). The planned orders are independent requirements with order type **VP**. This order type cannot be converted (note the *Conversion* field in the display of the planned order). This ensures that it is not possible to produce yet. It is impossible to convert these (VP) planned orders into production orders or to use them in a repetitive manufacturing environment.
2. The MRP run also creates procurement requisitions for the components of the assembly (In this example, JLH-74 is the assembly). The stock/requirements list for a component displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	PIOrd.	1237/Stck	100	100
<reqdat1>	DepReq	JLH-74	100 -	0
<reqdat2>	PIOrd.	1238/Stck	100	100
<reqdat2>	DepReq	JLH-74	100 -	0
<reqdat3>	PIOrd.	1239/Stck	100	100
<reqdat3>	DepReq	JLH-74	100 -	0

3. The main objective of this strategy (procurement for the components of the assembly) has now been reached, even without an order. In this scenario, we assume that a goods receipt (for a purchase order, for example) takes place. The stock/requirements list for all components of the final assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			300

Sample Scenario 74

<reqdat1>	DepReq	JLH-74	100 -	200
<reqdat2>	DepReq	JLH-74	100 -	100
<reqdat3>	DepReq	JLH-74	100	0

Stage 3: Order Requirement and Allocation

1. Typically, a sales order is created for a finished product whose BOM uses the assembly. An order that uses the assembly is created.
2. After a second MRP run, the stock/requirements list for the assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<req date>	PIOrd	1233/Stck	50	50
<req date>	OrdRes	1000222	50-	0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	50	50
<reqdat1>	IndReq	VSEM	50 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSEM	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSEM	100 -	0

The independent requirements for the assembly have been consumed, resulting in reduction of the planned independent requirements.

Stage 4: Procurement After Production

1. A reservation was therefore created one level lower, shifting the source of the requirement from the independent requirement to the sales order. The stock/requirements list of the component of the assembly displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			300
<today>	DepReq	JLH-74	50 -	250

Sample Scenario 74

<reqdat1>	DepReq	JLH-74	50	200
<reqdat2>	DepReq	JLH-74	100 -	100
<reqdat3>	DepReq	JLH-74	100 -	0

- Now a production order can be created for the assembly (Logistics → Production → Production control → Order → Create). The components are available to produce the assembly.

Stage 5: Goods Issue for Production Order

After goods issue for the production order, the stock/requirements list for the assembly looks as follows:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			50
<req date>	OrdRes	1000222	50-	0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	50	50
<reqdat1>	IndReq	VSEM	50 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSEM	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSEM	100 -	0

The stock/requirements list for the components of the assembly displays the following information:

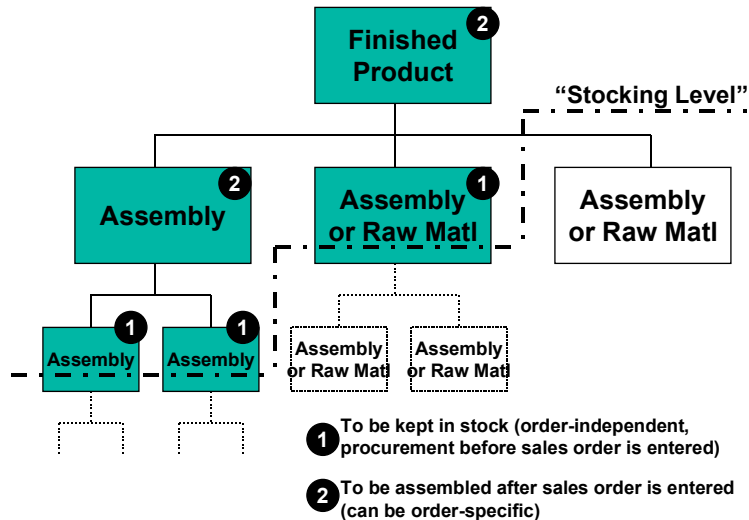
Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			250
<reqdat1>	DepReq	JLH-74	50	200
<reqdat2>	DepReq	JLH-74	100 -	100
<reqdat3>	DepReq	JLH-74	100 -	0

Stockkeeping at Different BOM Levels

Stockkeeping at Different BOM Levels

When using strategy 52, 63, 50, 60, or similar strategies for the finished product, certain issues arise as to the level on which the materials should be kept in stock.

You can choose between the following options, illustrated in the graphic below:



Stocking Level Two Levels Below the Finished Product

This corresponds to the assembly on the left-hand side of the above graphic. The components should be assembled during the **Procurement After Sales Order** stage, whereas the components of the assembly should be kept in stock (during the **Procurement Before Sales Order** stage, on the basis of planned independent requirements, and not assigned to a specific sales order).

Maintain the master data as follows:

- The assembly must have the *Special procurement* key set to **60** (Phantom in planning) on the *MRP2* screen. This means that the assembly is not built until a sales order exists for the finished product. There will, however, be a planned order (and production order) for the assembly once the sales order has been entered.
- The *Individual/coll.* indicator must be set to **2** on the *MRP4* screen for the components of the assembly if the finished product is make-to-order (strategy 50 or 60). The components are procured in accordance with the planning at finished product level.

Stocking Level One Level Below the Finished Product

Stockkeeping at Different BOM Levels

This corresponds to the assembly in the center of the above graphic. The components should be assembled during the **Procurement Before Sales Order** stage and should be kept in stock, without being assigned to a specific sales order.

Maintain the master data as follows:

- The *Individual/coll.* indicator must be set to **2** on the *MRP4* screen for the component / assembly if the finished product is make-to-order strategy 50 or 60. The components are procured in accordance with the planning at finished product level.

This is probably the most common way to use the strategies without final assembly (52, 63, 50, 60).

No Components Stored on Level Below the Finished Product

This corresponds to the assembly / component on the right-hand side of the above graphic. The components should be assembled during the **Procurement After Sales Order** stage, and should **not** be kept in stock. If the finished product is assembled according to make-to-order (strategy 50 or 60), the component is also assembled according to make-to-order. There will be a customer-specific segment in the stock/requirements list.

Maintain the master data as follows:

- The *Individual/coll.* indicator must be set to **1** or left blank on the *MRP4* screen for the component / assembly. The components are not procured until a sales order exists for the finished product.



If you are working in a make-to-order environment, do not forget to set the *Individual/coll.* indicator again for the levels below this assembly until you reach an assembly which is set to **2**, or which is not planned at all. Otherwise the whole structure below this assembly would be produced according to make-to-order.

Replenishment Lead Time

Replenishment Lead Time

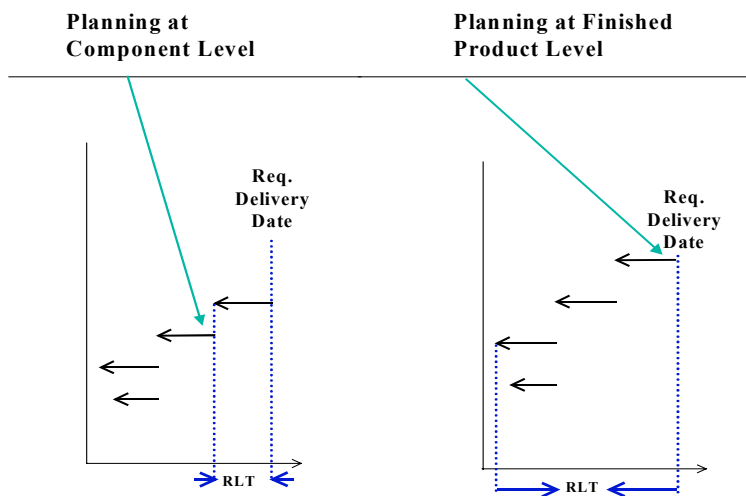
Definition

Total time for the in-house production or for the external procurement of a product. In in-house production, the replenishment lead time is determined to cover all BOM levels.

Use

As a rule, the replenishment lead time is used in the availability check. If the replenishment lead time is not maintained, then the system uses the in-house production time or the planned delivery time to determine component availability. If both are maintained, the in-house production time or the planned delivery time have higher priority than the replenishment lead time.

Integration



The replenishment lead time is interpreted as follows:

- In the case of planning at component level, the replenishment lead time is reduced to the **in-house production time**.
- When planning at finished product level, the replenishment lead time is considered to be the production time of the overall structure. To react quickly to customer demand, ensure the following:
 - Planned independent requirements are maintained at finished product level.
 - Sales orders are entered a long time in advance.

Strategies for Make-to-Order (MTO) Production

Purpose

The planning strategies explained in this section are designed for the production of a material for a specific individual sales order. In other words, you do not want to produce finished products until you receive a sales order. This means that make-to-order strategies always support a very close customer-vendor relationship, because your sales orders are closely linked to production.

The same relationship exists between the sales order and production that exists in a make-to-order environment. Make-to-order is also used in the following environments.

- Production using variant configuration
- Assemble-to-order

Prerequisites

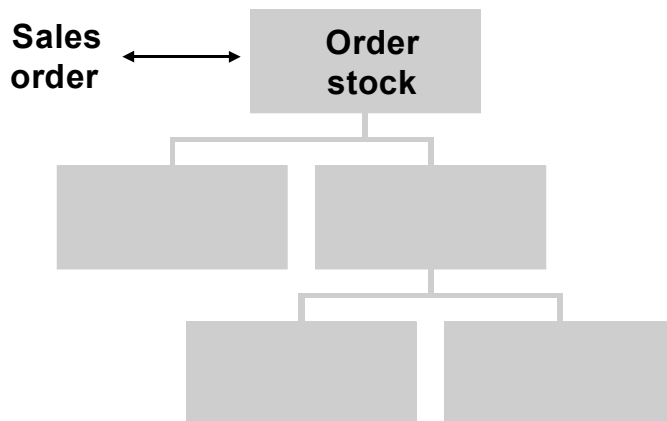
Choose a make-to-order strategy, if:

- The materials are segregated. In other words, they are uniquely assigned to specific sales orders.
- Costs must be tracked at sales order level and **not** on material level.



Make-to-order strategies should always be combined with lot-size key **EX** (lot-for-lot). Rounding values should not be used. If you maintain rounding values, they have no effect due to the make-to-order properties of these strategies.

Process Flow



- There are extensive options that enable you to procure components especially for specific sales order items.
You may, however, want to use a different planning strategy to procure components

Strategies for Make-to-Order (MTO) Production

without sales orders. This allows you to keep your [replenishment lead time \[Page 78\]](#) to a minimum. You can do this by:

- Planning on the basis of the finished product (see [Planning Without Final Assembly \(50\) \[Page 81\]](#) or [Planning with a Planning Material \(60\) \[Page 87\]](#))
- Planning at component level (see [Strategies for Planning Components \[Page 56\]](#))
- Using consumption-based or Kanban-controlled components
- Customer stock can exist on any BOM level. See [Stockkeeping at Different BOM Levels \[Page 76\]](#) for more information.
- Because production is closely linked to sales orders, this results in a customer section in the stock/requirements list.
- Unplanned goods receipts (such as returns) cannot, as a rule, be used for other sales orders, even if they are in working order, unless they are adapted to meet a customer's needs.

In the basic make-to-order strategy, [Make-to-Order Production \(20\) \[Page 93\]](#), no specific product structures are required. This means that it does not matter if the material has a BOM or not. The material can be produced in-house, or it can be procured externally. No planning is involved in this strategy.

[Planning Without Final Assembly \(50\) \[Page 81\]](#) and [Planning with a Planning Material \(60\) \[Page 87\]](#) do require a specific product structure (i.e. a BOM, which means materials are always produced in-house). These planning strategies assume that you want to plan procurement (production or purchasing) of your components by planning the finished products. This means that you need to have a fairly stable demand for your finished products. If, however, you can plan more easily at component level than at finished product level, see [Strategies for Planning Components \[Page 56\]](#).

Planning w/o Final Assembly (50)

Purpose

Use this planning strategy when the main value-added process is final assembly.

This strategy and [Planning with a Planning Material \(60\) \[Page 87\]](#) are probably the most widely-used strategies in a make-to-order environment. Like all make-to-order strategies, you should use strategy 50 if production is unique for each and every customer; in other words, it is not possible to change the stock for different sales orders.

Prerequisites

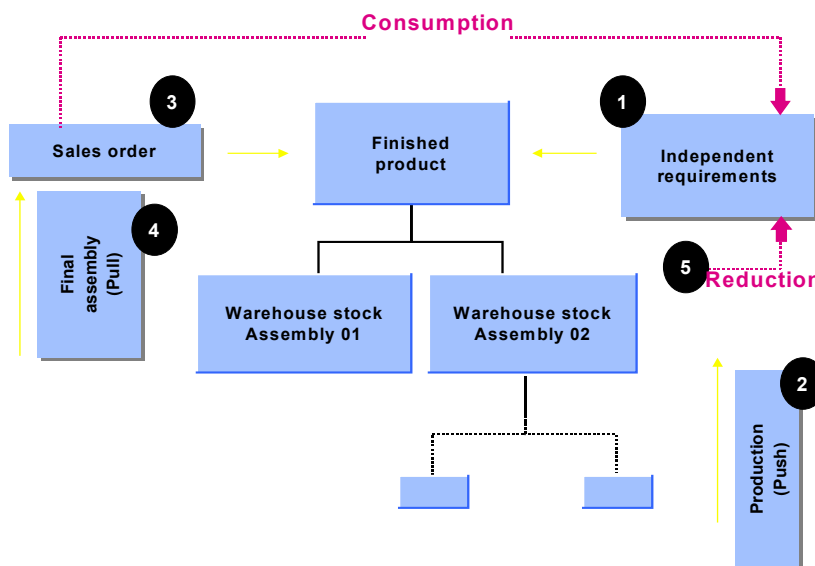
You must maintain the following master data for the finished product:

- Strategy group **50** on the *MRP* screen
- Consumption parameters (*Consumption mode*, *Bwd consumption*, *Fwd consumption*) so that the independent requirements can be found. If no independent requirements can be found, default values are taken from the MRP group.
For more information, see [Consumption Strategies and Logic \[Page 154\]](#).
- Item category group (for example, **NORM**) on the *Sales Organization* screen

A BOM is required for the finished product. There are no major implications for the BOM components. However, you must maintain the following settings:

- Set the MRP type to **P*** (or **M***) to plan the components in MRP.
- You may want to consider setting the *Individual/coll.* indicator to **2** for a make-to-stock procurement of components in a make-to-order environment.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 50 \[Page 84\]](#).

Planning w/o Final Assembly (50)

1. Production quantities can be planned effectively. It is possible to use information from the Sales Information System, SOP, or other planning tools to plan production quantities.
2. Procurement of the components is planned by means of planned independent requirements entered at the finished product level. The system creates special planned orders at the finished product level for these planned independent requirements. These orders are only relevant for production once a sales order for the finished product exists.

Planned independent requirements that are planned using this particular strategy are listed in a separate segment in the MRP list. The planned orders are created with the order type **VP** and are unconvertible. The sales orders for this strategy are entered as individual customer requirements and are maintained in a separate segment in the planning run.

3. The assemblies are, however, produced or procured before the sales order is entered. Production is carried out up to one level before the finished product level, and the assemblies and components required for producing the finished product are placed in stock to await the incoming sales order.
4. Final assembly is triggered once a sales order has been entered.
5. An availability check is performed on the basis of planned independent requirements. This means that unplanned stock (such as returns) is not considered for sales. See [Availability Check \[Page 157\]](#).
6. The incoming sales order consumes the planned independent requirements, and this in turn reduces the unconvertible planned order quantity.
7. The system creates a new convertible planned order for the sales order quantity. If the unconvertible planned order quantity is not completely used up by the sales order quantity, it remains in the system. If the sales order quantity exceeds the planned independent requirements quantity, the unconvertible planned order quantity is increased. See [Coping with Insufficient Coverage of Components \[Page 18\]](#) for more information.
8. Planned independent requirement of the finished goods quantities that are left unconsumed increase the warehouse stock of the components and cause procurement to be decreased or not to take place at all in the next period. This process is called *netting*.

Result

Strategies 50 and 60 are very similar to strategies [52 \[Page 40\]](#) and [63 \[Page 48\]](#). The following table shows the differences between the strategies:

Strategy	50, 60	52, 63
Costing, settlement, work-in-progress, etc.	Make-to-order	Make-to-stock
Finished product stock (and component stock, if required)	Segregated per sales order item	Not segregated
Lot-size indicator and rounding values	Automatically set to EX	User has to ensure that the appropriate values are set

Other Areas

Stocking Levels

See [Stockkeeping at Different BOM Levels \[Page 76\]](#).

Availability Check

In a make-to-order sales order, the system always uses checking rule **AE** (as opposed to **A** in a make-to-stock sales order). In the standard system, there are no differences between checking control **01/AE** and **02/AE**, which means there are no major considerations for maintaining the material master for the finished product.

Sample Scenario: Strategy 50

Sample Scenario: Strategy 50

Process Flow

The process flow for strategy 50 is very similar to the process for strategy 52. This sample scenario refers to [Sample Scenario: Strategy 52 \[Page 43\]](#) and is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat3>.

Stage 1: Demand Management

1. This stage is the same as for strategy 52, which means planned independent requirements are created for the production plan, and the system finds requirements type **VSE**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).
2. The requirements are passed on to MRP. The stock/requirements list (*Logistics* → *Production* → *MRP* → *Evaluations* → *Stock/reqmts list*) displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	IndReq	VSE	100 -	100 -
<reqdat2>	IndReq	VSE	100 -	200 -
<reqdat3>	IndReq	VSE	100 -	300 -

Stage 2: Procurement Before Sales

This stage is the also the same as for strategy 52, which means non-convertible planned orders are created for the finished product. Procurement for the components takes place.

Stage 3: Sales Order and Allocation

1. A sales order is created for the parent material.

Unlike strategy 52, the system finds the requirements type **KSVS** because the strategy group is set to 50. See the [Table of Planning Strategy Assignments \[Page 147\]](#).
2. As for strategy 52, the following two things happen:
 - A quantity that has been previously planned (such as 100 pieces for each schedule line in this example) can be confirmed (choose *Edit* → *Item availability* in the sales order menu). Note the header text that says Assignment of Planned Independent Requirements. This means that the availability check is not performed according to ATP logic, but instead it is based on planned independent requirements.
 - The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**.

Sample Scenario: Strategy 50

- After the sales order has been entered, the stock/requirements list for the parent material displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000333/0010		0
<today>	Order	000333/0010/001	90 -	90 -
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100
<reqdat1>	IndReq	VSE	10 -	90
<reqdat2>	PIOrd.	1235/ IndR	100	190
<reqdat2>	IndReq	VSE	100 -	90
<reqdat3>	PIOrd.	1236/ IndR	100	190
<reqdat3>	IndReq	VSE	100 -	90

The only difference between this stock/requirements list and the one at the same point in strategy 52 is the Cstock line that segregates the different sales order stocks.

Stage 4: Procurement After Sales

- This stage is similar to strategy 52. The stock/requirements list for the parent material displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000333/0010		0
<today>	Order	000333/0010/001	90 -	0
<t+rlt>	PIOrd.	1237/Ord.	90	0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	10	10
<reqdat1>	IndReq	VSE	10 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSE	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSE	100 -	0

Sample Scenario: Strategy 50



The difference between this strategy and strategy 52 is that the system creates a planned order with order type **ORD** (make-to-order) instead of **STCK**.

- The goods receipt from production results in a customer stock and the stock/requirements list then looks like this (note the stock in the Cstock line):

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000333/0010		90
<today>	Order	000333/0010/001	90 -	90 -
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	10	10
<reqdat1>	IndReq	VSE	10 -	0
<reqdat2>	PIOrd.	1235/IndR	100	100
<reqdat2>	IndReq	VSE	100 -	0
<reqdat3>	PIOrd.	1236/IndR	100	100
<reqdat3>	IndReq	VSE	100 -	0

- As long as you have set the *Individual/coll.* indicator to **2**, there are no differences at component level.

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

This stage is the also the same as for strategy 52, which means that the planned independent requirements are physically reduced.

Planning with a Planning Material (60)

Purpose

This planning strategy is particularly useful for planning BOMs that contain variant as well as non-variable parts.

The important feature of this strategy is that you can procure non-variable components on the basis of planning in Demand Management. Production of the finished product is based on actual sales orders. This procedure ensures that you can react quickly to customer requirements even if the finished product has a long overall lead time. You can avoid the main value-added process until you have a customer.

This strategy allows you to plan the variants of one product. The term variant indicates "similar" parts; it is **not** used in the sense of variant configuration, which implies a much higher number of variants. With this strategy, for example, you can easily exchange a component in all similar BOMs.

Examples from Industry

This strategy lends itself to the planning of different sizes or packages for one product. For instance, you may want to sell a product in packages:

- Containing 1 liter, 2 liters and 1 gallon.
- Labeled in English, German, and Japanese.

Prerequisites

Create a separate material master record for the planning material and enter the planning material in the material master record of all finished products that are to be planned using this planning strategy. Maintain the products as follows:

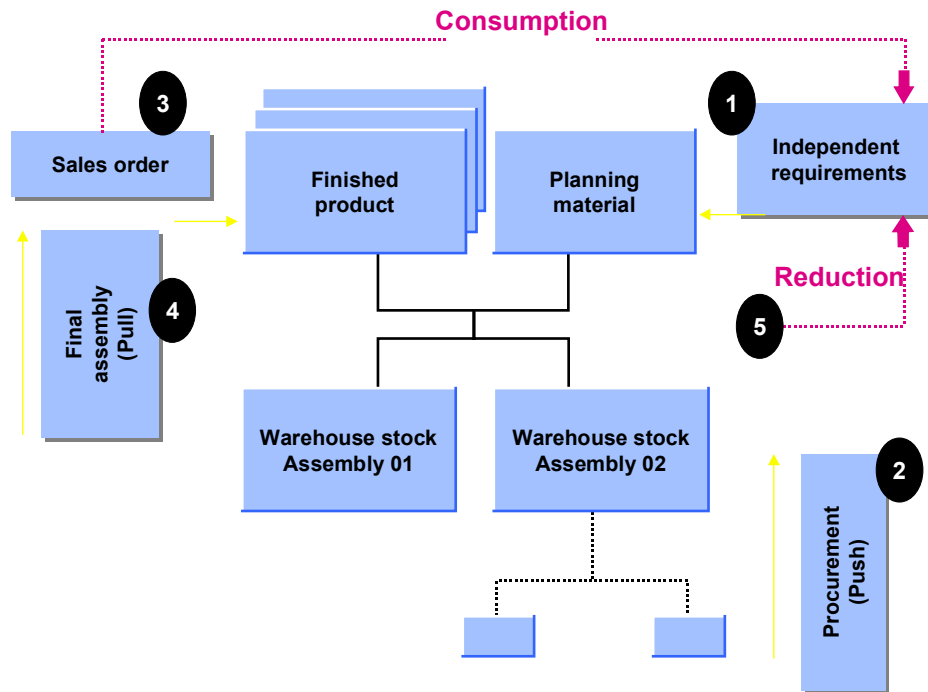
Master data	'Variant' products	Planning material
Strategy group (MRP screen)	60	60
Item category group (Sales organization screen)	For example, NORM	For example, NORM
Consumption parameters (Consumption mode, Bwd consumption per., Fwd Consumption per.) (MRP screen)	Not to be maintained, the values of the planning material are used.	Need to be maintained so that the planned independent requirements can be found. (See Consumption Strategies and Logic [Page 154])
Planning material, Planning plant and Ping conv. Factor (MRP screen)	Need to be maintained.	

Planning with a Planning Material (60)

There are no major implications for the BOM components. However, you need to note the following:

- You need to set the MRP type (on the *MRP* Screen) to **P*** or **M*** to plan the component in MRP.
- You may want to consider setting the *Individual/coll.* indicator (on the *MRP* Screen) to **2** for a make-to-stock procurement of components in a make-to-order environment.

Process Flow



For a detailed example of the entire process, see [Sample Scenario: Strategy 60 \[Page 90\]](#).

This strategy has the same basic features as strategy 50. In addition **many** materials can consume the planned independent requirements of one planning material. Refer to [Planning Without Final Assembly \(50\) \[Page 81\]](#) for more information on the differences between these strategies.

The non-variable parts are planned using the BOM of a planning material. The planning material is used for planning purposes only. It is not actually produced, but is used to pass on the dependent requirements of the non-variable parts from the finished product. The variant parts can be planned using the strategy [Planning at Assembly Level \(70\) \[Page 58\]](#). The advantage of planning with a planning material is that you can plan all the non-variable parts included in several finished products together.



The "variant" components cannot be planned exactly using this strategy. Instead:

- Make the variant components are consumption-based.

Planning with a Planning Material (60)

- Plan the variant components independently using a planning strategy for components. See [Strategies for Planning Components \[Page 56\]](#) for more information.
- Accept an over-planning or an under-planning of the variant components.

If you have high variance in your products, you may want to automate the planning of components. See [Strategies for Configurable Materials \[Page 98\]](#) for more information.

This strategy can also be used as a cross-plant version of strategy 50. See [Cross-Plant Planning \[Page 156\]](#) for more information.

Other Areas

See the *Other Areas* sections of the following:

[Planning Without Final Assembly \(50\) \[Page 81\]](#)

[Planning with a Planning Material and Without MTO \(63\) \[Page 48\]](#)

Sample Scenario: Strategy 60

Sample Scenario: Strategy 60

Process Flow

The process flow for strategy 60 is very similar to the process for strategy 63. This sample scenario refers to [Sample Scenario: Strategy 63 \[Page 51\]](#).

This example is based on a production plan in which 100 pieces are planned for <reqdat1>, <reqdat2>, and <reqdat3>.

Stage 1: Demand Management

1. This stage is the same as for strategy 63, which means planned independent requirements are created for the production plan, and the system finds requirements type **VSEV**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).
2. The requirements are passed on to MRP. The stock/requirements list (*Logistics → Production → MRP → Evaluations → Stock/reqmts list*) displays the following information:

Date	MRP element	MRP element data	Received/required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	IndReq	VSEV	100 -	100 -
<reqdat2>	IndReq	VSEV	100 -	200 -
<reqdat3>	IndReq	VSEV	100 -	300 -

Stage 2: Procurement Before Sales

This stage is also the same as for strategy 63, which means non-convertible planned orders are created for the planning material. Procurement for the components takes place.

Stage 3: Sales Order and Allocation

1. A sales order is created for the parent material.

Unlike strategy 52, the system finds the requirements type **KEVV** because the strategy group is set to **60**. See the [Table of Planning Strategy Assignments \[Page 147\]](#).

As in strategy 52, the following two things happen:

 - A quantity that has been previously planned (such as 100 pieces for each schedule line in this example) can be confirmed (choose *Edit → Item availability* in the sales order menu). The header text that says, *Assignment of Planned Independent Requirements*. This means that the availability check is not performed according to ATP logic, but instead it is based on planned independent requirements.

Sample Scenario: Strategy 60

- The system finds the schedule line category **CP** and the item category **TAN** because the item category group was set to **NORM**.
- 2. After the sales order has been entered, the stock/requirements list for the variant material displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	00035/0010		0
<orderdat>	Order	00035/0010/001	90 -	0

- 3. The stock/requirements list for the planning material changes, as shown, because an allocation has taken place:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	→ Planning w/o assembly			
<reqdat1>	PIOrd.	1234/IndR	100	100
<reqdat1>	IndReq	VSEV	10 -	90
<reqdat2>	PIOrd.	1235/ IndR	100	190
<reqdat2>	IndReq	VSEV	100 -	90
<reqdat3>	PIOrd.	1236/ IndR	100	190
<reqdat3>	IndReq	VSEV	100 -	90

At component level, the requirement from the planning material is switched to a requirement from the variant material. The sum of requirements remains the same.

Stage 4: Procurement After Sales

This stage is similar to strategy 63. The stock/requirements list for the parent material displays the following information:

Date	MRP element	MRP element data	EM	Received/ required quantity	Available quantity
<today>	Stock				0

Sample Scenario: Strategy 60

<today>	Cstock	000335/0010			90
<orderdat>	PIOrd.	000335/Ord.	05	90	90
<orderdat>	Order	000333/0010/001		90 -	0

At this point the difference between this strategy and strategy 63 is that the system creates a planned order with order type ORD (make-to-order) instead of STCK.

The planned order for the variant material is now convertible and triggers production once the sales order has been entered.

As long as you have set the *Individual/coll.* indicator to **2** on the *MRP4* screen (to ensure a make-to-stock procurement of components in a make-to-order environment), there are no differences at component level.

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

This stage is the also the same as for strategy 63, which means that the planned independent requirements are physically reduced.

Make-to-Order Production (20)

Purpose

In make-to-order production, a product is produced specifically for an individual sales order. This planning strategy is used when planning of the (parent) product is not required or not possible. Neither Demand Management is involved in this process, nor is there an allocation mechanism. Orders are taken as they come. This strategy represents a production procedure in which each product is only produced once, although over time the same or similar production processes are repeated. Each product is specifically produced for an individual customer so that the finished product is rarely placed in stock.

Prerequisites

You have the following two options.

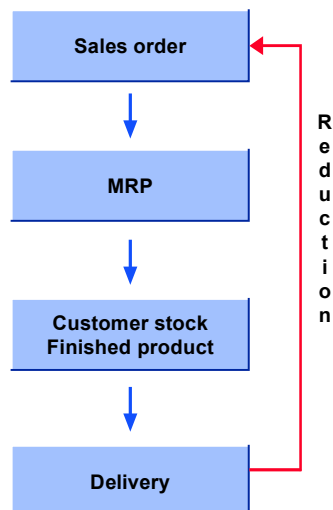
- Be able to do the following:
 - Procure all necessary components within the total replenishment lead time
 - Plan on component level
 - Use consumption-based components or Kanban-based components
- Receive the sales orders at a very early stage with regard to the replenishment lead time.

You also must maintain the following master data settings for the finished product:

- Strategy group **20** on the *MRP* screen
- Item category group (such as **NORM**) on the *Sales Organization* screen

No specific product structure is required. This means it does not matter if the material has a BOM (internal production) or not (and is procured externally). The material is, however, usually produced in-house as in the subsequent sample scenario.

Process Flow



Make-to-Order Production (20)

For a detailed example of the entire process, see [Sample Scenario: Strategy 20 \[Page 95\]](#).

1. The sales order quantities are planned for production using the sales order number. The quantities produced for the individual sales orders cannot be changed. Each quantity is maintained specifically for the individual sales order. A separate segment is created in the MRP list for make-to-order production.
2. Starting from the sales order, you can apply this type of planning to as many levels of the BOM as you want. Assemblies and components are produced or procured specifically for the pegged order and stock is managed separately for this sales order.
3. The production and procurement costs are maintained for each sales order in either a settlement order or in a project at sales order item level. This ensures a detailed analysis of the planned and actual costs.

You can also use this production technique to create “assembly orders.” The assembly order triggers the creation of a production order or of a planned order and provides you with a precise delivery schedule. The delivery schedule is based on availability and the production requirements of the relevant assemblies and components.

Other Areas

Stocking Level

See [Stockkeeping at Different BOM Levels \[Page 76\]](#) for more information.

Availability Check

There are no major factors to consider when maintaining the material master of the finished product. See [Availability Check \[Page 157\]](#).

Sample Scenario: Strategy 20

Process Flow

Stage 1: Demand Management

This stage does not apply to this strategy.

Stage 2: Procurement Before Sales

This stage does not apply to this strategy because there is no production without a sales order. If sales orders exist in the system in advance, production is performed before the required delivery date.

Stage 3: Sales Order and Allocation

1. A sales order is created.
 - Any quantity can be confirmed according to the ATP checking rule for a make-to-order environment, **AE**. The header text, which says *Availability Control*, indicates this is an availability check according to ATP logic.
 - The system finds the schedule line category **CP** and item category **TAN** because the item category group was set to **NORM**.
 - The system finds the requirements type **KE** (under the *Procurement type* tab title on the *Sales Order* screen because the strategy group has been set to **20**).
2. In this scenario, an order with a quantity of ten pieces is now entered with a required delivery date of today. This order can be confirmed after the replenishment lead time.
3. Once the sales order has been entered, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000333/0010		0
<today>	Order	000333/0010/001	10 -	10 -



he Cstock lines divide the total stock into independent customer sections.

Stage 4: Procurement After Sales

1. A procurement requisition is created in the MRP run (*Logistics* → *Production* → *MRP* → *Total planning*). The stock/requirements list displays the following information:

Sample Scenario: Strategy 20

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000333/0010		0
<today>	Order	000333/0010/001	10 -	10 -
<t+rlt>	PIOrd.	000214/Stck	10	0

t + rlt = today + replenishment lead time

This procurement requisition is the starting point for production or external procurement. Various possibilities exist for handling the procurement process in the R/3 System. One option would be to convert the planned order into a production order, then release the production order and a goods receipt for the yield quantity.

2. After processing a goods receipt for the order and running MRP a second time, the stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000333/0010		10
<today>	Order	000333/0010/001	10 -	0

Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements

After goods issue for the delivery (choose *Logistics* → *Sales and distribution* → *Shipping* → *Delivery* → *Create*), the stock/requirements list is reset.

Cross-Plant Planning

Purpose

Demand Management can also be used to plan across plants. For each material, there is a **planning plant** that procures and stores the materials independently of orders. There are also one or more **ordering plants** in which the materials are used for sales orders, production orders, or for other requirements.

Prerequisites

You must set up the material master as follows:

Planning Plant	Ordering Plant
Any strategy group	Special procurement type = 40
<i>Mixed MRP</i> indicator = 1	

Process Flow

The following table illustrates a typical process flow:

Planning Plant	Ordering Plant
1. Planned independent requirements are created in Demand Management and trigger procurement.	
2. Procurement takes place before sales order arrives. Materials are placed in stock.	
	3. Any order (sales order, production order, reservation) is created.
	4. A stock transport order is created (for example, by converting a transfer request which was created by the MRP run).
5. Delivery for the stock transport order.	
	6. Goods receipt for the stock transport order.
	7. Material is available for order.

Strategies for Configurable Materials

Definition

A configurable material is a material for which different variants are possible.

The strategies for configurable materials allow you to plan products with an almost unlimited number of possible combinations of characteristics and combination value keys. Use these strategies if you want to plan a product that uses a feasible combination of characteristic values and that does not include **final assembly**. Typical examples of such products are cars, elevators, forklifts, trucks, buses.

Variants, as described in [Material Variants \[Ext.\]](#), could not be used to plan these products because you had to create billions of variants. Entering usage probabilities for characteristic values instead allows you to plan materials that have a large number of variants. This procedure also improves change management for the components because planning is separated from construction changes.

Structure

A configurable material can have a few or very many variants, as the following examples demonstrate:

- A personal computer may have several more characteristics. For example, hard disk capacity, casing, CPU, country version, color.
- A car may have up to several hundred characteristics, each in turn having many characteristic values.
- An elevator consists of a large number of characteristics, but cannot even be assembled without having to construct new parts for each elevator.

The number of characteristics and characteristic values (in other words, the variance) of a material is a key factor when choosing the right planning strategy. Planning a few variants differs drastically from planning thousands or millions of variants. Before you choose a planning strategy for a configurable material, you must consider the possible number of variants.

- A personal computer could be produced with two different types of hard disk, three casing types, two CPU types, two country versions, and three colors which results in 72 variants
($2 * 3 * 2 * 2 * 3$).
- A car with several dozen characteristics could result in a million variants.
- An elevator could have millions of **standard** variants, and an unlimited number of **additional** variants, produced specifically to meet customer requirements.

Integration

By choosing an appropriate approach to planning, you can reduce the complexity of planning. For example:

- You use consumption-based procurement for inexpensive components and some software components. The result is you plan expensive components only. For instance, you may only want to plan CPU types and casing types, resulting in six variants.

Strategies for Configurable Materials

- You can also use similar approaches to planning for more complex products such as cars and elevators.
- Reducing the number of variants simplifies the planning of configurable materials. Up to a certain complexity, you could plan at finished product level. For example, you could plan the number of different personal computers, such as 100 desktop PCs with a Pentium processor, and 80 tower PCs with a 486 processor.
- There are two possible approaches for planning complex products such as cars:
 - If you allow your customers to configure the product completely, you can plan the components directly, using the strategy [Planning at Assembly Level \(70\) \[Page 58\]](#), for example. This approach would result in one set of planned independent requirements for all components (which are not procured on the basis of consumption or controlled by Kanban). You could enter these planned independent requirements manually, but to simplify the process you may want to plan the characteristics directly, and have the system automatically generate the planned independent requirements for the components (see [strategy 89 \[Page 121\]](#)). It is also possible to use [Characteristics Planning w/ Dependent Req'ts \(56\) \[Page 117\]](#).
 - Another approach, which is possible even for very complex products such as cars, is to define a set of material variants (previously known as stockable types) which are produced using a make-to-stock strategy. The advantage of this approach is that your customers are immediately provided with products from stock. The disadvantage is that customers cannot fully configure the product. They must buy goods from stock.

See also:

[Variant Configuration \[Ext.\]](#)

Strategies for Variants

Strategies for Variants

Definition

Low Variance

This section describes how to plan products that have a practical limited number of possible combinations of characteristics and characteristic values. Technically speaking this section describes the use of variants to sell configurable materials.

Variants can be used to facilitate the work with configurable materials. Variants of a configurable material are, for example, defined to prefabricate frequently required configurations and place them in stock, which is why variants were formerly called **stockable types**.

For some configurable materials, it may be difficult to determine the variants of a configurable material. To use the strategies for variants effectively you must have an estimate of future consumption for each variant.

If the configuration is not changed during the *Sales Order* stage, production can occur at the *Production Before Sales Order* stage. Then the customers must purchase the variants as they are or as they were planned. The benefit is that the products can be shipped immediately to the customers, if they are in stock.

For more information see:

- [Material Master Record for Variant Maintenance \[Ext.\]](#), which describes when and how to create variants
- [Variant Matching in Customer Orders \[Ext.\]](#) and [Value Assignments \[Ext.\]](#) for information on how variant determination and variant matching work

Make to Stock Production for Variants

Variants can be planned on the finished product level using any make-to-stock strategy, such as [Planning with Final Assembly \(40\) \[Page 12\]](#) or [Net Requirements Planning \(10\) \[Page 24\]](#).

The planning of variants with make-to-stock strategies combines the advantages of make-to-stock production (very short delivery time) with the advantages of variant configuration (one BOM and one routing for a whole product family).

Make to Order Production for Variants

Variants can be planned on the finished product level using any make-to-order strategy, such as [Planning w/o Final Assembly \(50\) \[Page 81\]](#) or [Planning with a Planning Material \(60\) \[Page 87\]](#).

The planning of variants with make-to-order strategies combines the advantages of make-to-order production (planning without final assembly or cost tracking on the sales order level) with the advantages of variant configuration (one BOM and one routing for a whole product family).

Integration

The following table illustrates the stages involved for each strategy.

Strategy/Stage	55	26	65
----------------	----	----	----

Strategies for Variants

Similar Make-to-Order Strategy	50	20	60
Demand Management	Yes	No	Yes
Procurement before Sales	Yes	No	Yes
Sales Order	Yes	Yes	Yes
Procurement after Sales	Yes	Yes	Yes
Goods Issue for Delivery and reduction of PIR	Yes	Yes	Yes

MTO Production for Material Variants (26)

MTO Production for Material Variants (26)

Purpose

This strategy is similar to [Make-to-Order Production \(20\) \[Page 93\]](#). The difference is that strategy 26 lets you change the configuration of the variant.

Prerequisites

You must maintain the following master data settings:

- One configurable material with the standard configuration data such as characteristics, classes, and configuration profiles.
- One variant for defined combinations of characteristics values. Limit the number of combinations.

Process Flow

1. **Stage 1: Demand Management**

Does not apply.

2. **Stage 2: Procurement Before Sales**

Does not apply.

3. **Stage 3: Sales Order**

You create a sales order either directly by entering a variant or a configurable material and using variant determination. The system finds the requirement type **KEL** because the strategy group has been set to **26**. To display the requirement type from the Sales Order screen, choose *Procurement* tab strip.

4. **Stage 4: Procurement After Sales**

Make-to-Order production of the finished product takes place.

5. **Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements**

Delivery of the finished product takes place.

See also

[Comparing Strategies 25 and 26 \[Page 103\]](#)

Comparing Strategies 25 and 26

Strategy	25 [Page 128]	26 [Page 102]
Configuration (of a variant)	Must	Can
Material used in sales order	Configurable material	Variant
Default configuration (frequently used configurations can be stored)	One configuration can be defaulted per configurable material using the defaults in characteristics	Several configurations can be stored (in other words, one configuration can be stored per variant)
Entry in SD Order	Configurable material	Variant

Planning Variants w/o Final Assembly (55)

Planning Variants w/o Final Assembly (55)

Purpose

This strategy is similar to [Planning w/o Final Assembly \(50\) \[Page 81\]](#) for non-configurable materials. The difference between these two strategies is that strategy **55** allows the user to reconfigure the variant during a sales order.



Changes to the configuration **must not** affect planned components. Planned independent requirements for variants do not make sense when changing the configuration of the variant in the sales order. A sold item that has no relation to the configuration of the planned variant could result. Therefore, change the configuration for strategy **55** with care.

Prerequisites

You must maintain the following master data settings:

- One configurable material with the usual configuration such as characteristics, classes, and configuration profiles.
- One variant per possible permutation of characteristics values (limit the number of permutations).

Process Flow

1. You create one planned independent requirement per variant. The variant must be completely configured.
2. Components of the variants are procured.
3. You create sales orders either directly by entering a variant or a configurable material and by using variant determination. The Requirements Type display for strategy 55 is KELV. To display the requirement type from the Sales Order screen, choose Procurement tab strip.
The system automatically adjusts the master plan if no planning variant can be found.
4. Make-to-Order production (assembly) of the finished product takes place.
5. The finished product is delivered.

Planning Variants w/ a Planning Material (65)

Purpose

This strategy is similar to [Planning w/ a Planning Material \(60\) \[Page 87\]](#). The difference between these two strategies is that strategy **65** allows the user to reconfigure the variant during a sales order.



Changes to the configuration **must not** affect planned components. Planned independent requirements for variants do not make sense when changing the configuration of the variant in the sales order. A sold item that has no relation to the configuration of the planned variant could result. Therefore, change the configuration for strategy **65** with care.

Prerequisites

You must maintain the following master data settings:

- One configurable material with strategy group **65** and the usual configuration, such as characteristics, classes, and configuration profiles.
- One planning material that contains the non-variable parts. The variable components cannot be planned with strategy **65** for reasons described in [Planning w/ a Planning Material and w/o MTO \(63\) \[Page 48\]](#) and [Planning w/ a Planning Material \(60\) \[Page 87\]](#). Set strategy group **65** and the consumption parameters (*Fwd. consumption*, *Bwd. consumption*, and *Consumption mode*).
- One variant material per each actual permutation of the characteristic values. The number of realistic permutations, and therefore variant materials, must be limited for this strategy.

Process Flow

1. **Stage 1: Demand Management**
You create one planned independent requirement per variant. The variant must be completely configured.
2. **Stage 2: Procurement Before Sales**
Components of the variants are procured.
3. **Stage 3: Sales Order**
You create sales orders either directly, by entering a variant, or by entering a configurable material and using variant determination. The Requirements Type display for strategy **65** is **ELVV**. To display the requirement type from the *Sales Order* screen, choose *Procurement* tab strip.
4. **Stage 4: Procurement After Sales**
Make-to-Order production (assembly) of the finished product takes place.
5. **Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements**

Planning Variants w/ a Planning Material (65)

The finished product is delivered.

Characteristics Planning

The following list describes the environment for characteristics planning

- Environment for BOM characteristics planning
- Very high number of variants
- Large BOM structures
- Many BOM changes
- Requirements maintained automatically
- Configuration of materials in planned independent requirements
- Requirements determined according to usage probabilities
- Assemblies planned using dependent requirements (strategy 56)
- Assemblies planned using independent requirements (strategy 89)

The strategies for configurable materials allow you to plan products with an almost unlimited number of possible combinations of characteristics and characteristics values. Use these strategies if you want to plan a product that uses a feasible combination of characteristic values and that does not include **final assembly**. Typical examples of such products are cars, elevators, forklifts, trucks, buses.

Variants, as described in [Material Variants \[Ext.\]](#), could not be used to plan these products because you had to create billions of variants. Entering usage probabilities for characteristic values instead allows you to plan materials that have a large number of variants. This procedure also improves change management for the components because planning is separated from construction changes.

Creating PIRs for Characteristics Planning

Creating PIRs for Characteristics Planning

Purpose

When creating or changing the planned independent requirements for configurable materials, the quantities and dates of the planned independent requirements and the usage probabilities are maintained individually per date and quantity.

When maintaining usage probabilities for the combination value keys of a characteristic, note the following:

Characteristics that only allow a simple valuation (also restrictable characteristics)

- Required characteristics: To create required characteristics, choose *Logistics* → *Central Function* → *Classification* → *Characteristic* → *Create*. On the *Create Characteristic: Basic Data* screen in the *Entry Control* group box, select *Entry Required*.

The sum of usage probabilities of the combination value keys must be 100%.

Example: The CPU is a required component of a PC. This means that you must have the same number of CPU boards and PCs.

- Optional characteristics:

The sum of the usage probabilities do not have to be 100%. The difference is assigned to the formal characteristic value *Non-valued*.



A modem is an optional component of a PC. The usage probabilities for two combination value keys Modem = 14 Kbaud (30%) and 28 Kbaud (35%) are 65% of the PCs. The remaining 35% have no modem (Modem = non-valued).

Characteristics that allow multiple valuation

Several values can be assigned to this type of characteristic at the same time. Characteristic values do not mutually exclude each other. The sum of usage probabilities can exceed 100%.

To create characteristics that allow multiple valuation, choose *Logistics* → *Central Function* → *Classification* → *Characteristic* → *Create*. On the *Create Characteristic: Basic Data* screen in the *Entry Control* group box, select *Entry Required*. Then choose *Extras* → *Format*. In the *Value Assignment* group box, select *Multiple Values*.



The characteristic 'extras' (EX) for the PC can have the values 'co-processor for graphical applications', 'sound card' and 'proshare'. A sales order for a PC could have the characteristic values EX = sound card and EX = proshare. You can enter the following configuration percentages: EX = Co-processor 60%, EX = sound card 70%, EX = proshare 30 %.

Required characteristic:

The sum of the usage probabilities of the combination value keys must be at least 100%. It can exceed 100%.

Creating PIRs for Characteristics Planning

Characteristic values that are not specified in the percentage configuration are considered to have a low usage probability. You cannot specify negative usage probabilities. No characteristic value can have a usage probability over 100%.

If the sum of the usage probabilities for a characteristic do not fulfill the conditions described above, the system displays a warning (inconsistency) on the maintenance screen. The configuration can be accepted, however. The system forces you to change your entries if the usage probabilities are negative.

Performing Consistent Distribution of Usage Probabilities Automatically

If the sum of the usage probabilities for a characteristic is inconsistent, you can instruct the system to distribute the usage probabilities consistently in the *Configuration supporting points* dialog box using *Automatic consistency*.

The **relations** between the usage probabilities of the characteristic values are constant and the **absolute values** are adjusted to add up to 100%.



The CPU of the PC only allows simple valuation. The usage probabilities, CPU = 386 30%, CPU = 486 90%, CPU = P6 30%. As the sum of the usage probabilities must be 100% not 150%, all usage probabilities are multiplied by the factor $100/150 = 2/3$. This produces the following results, CPU = 386 20%, CPU = 486 60%, CPU = P6 20%

Only usage probabilities that are not fixed are included in the automatic correction. Fixed values are protected from automatic changes.

When maintaining usage probabilities, the absolute values are adjusted according to the above-mentioned relationship of the usage probabilities. When maintaining the quantities, the values are rounded according to the unit.

Prerequisites

To maintain usage probabilities, the following are mandatory:

- The material must be a configurable material.
- The strategy group 56 (characteristics planning) or 89 (characteristics planning with assembly) must be maintained in the material master record.
- The characteristics of the configurable material to be planned must be flagged *relevant to planning* in the configuration menu. For more information, see [Flagging a Comb. Value Key as Relevant for Plannin \[Page 116\]g](#).

Procees Flow

SAP recommends the following procedure for maintaining usage probabilities:

- To create or change usage probabilities for planned independent requirements, from the *Create (or Change) Planned Independent Requirements* screen, choose *Supporting Points*. In the *Supporting Points* dialog box, all characteristic values relevant for planning and other data on combination value keys are displayed for each schedule line date. If you use [Processing Configuration Supporting Points \[Page 113\]](#) you do not have to maintain the same usage probabilities for each single schedule line.

Creating PIRs for Characteristics Planning

- If you require an overview of usage probabilities, select *Configuration table*. The system displays scheduled dates and quantities, and combination value keys with their usage probabilities.



When creating the planned independent requirements, all scheduled dates are proposed for processing.

When changing the planned independent requirements, only scheduled dates given values when they are created appear.

To see all dates in the configuration table, select all schedule lines on the *Planned Independent Requirements: Schedule Lines* screen.

See also:

[Processing Configuration Supporting Points \[Page 113\]](#)

Copying Data Per Column

Procedure

1. To copy usage probabilities and absolute quantities for each column, select the date with the value you want to copy. The heading of the column contains the quantity and the date of the schedule line.
2. Choose *Select mode/select*.
The column is highlighted.
3. Choose *Copy*.
The highlighted column is copied.
4. Position the cursor on the date to which you want to insert the copied values.
5. Select *Insert*.

Copying Data Per Line

Copying Data Per Line

Procedure

1. To copy usage probabilities and absolute quantities for each line, select the characteristic with the values you want to copy.
2. Select *Select mode/select*.
The line is highlighted.
3. Select *Copy*.
The highlighted line is copied.
4. Select the characteristic to which you want to insert the copied values.
5. Select *Insert*.
The system adds the values to the line selected.

Processing Configuration Supporting Points

Supporting points are used to simplify the maintenance of usage probabilities. You do not have to maintain the same usage probabilities for each date. If usage probabilities are maintained for a schedule line in the configuration table, these usage probabilities are valid for all following schedule lines until another supporting point is maintained with new usage probabilities. The dates for which usage probabilities are maintained are known as supporting points.

An S next to the splitting indicator on the schedule line screen indicates it is a supporting point.

Procedure

You maintain the usage probabilities of the combination value keys with the *configuration supporting point* function.

1. To access this dialog box, on the schedule lines screen of demand management, select the schedule lines for which you want to display or process the usage probabilities.
2. Choose *Conf.supporting pnt.*
The system displays the *Configuration of the Usage Probabilities* dialog box.
3. To enter usage probabilities in percentages, enter data in the *Usge prob.* column.
To enter the usage probabilities as quantities, enter data in the *Quantities.* column.
Manual entries are automatically provided with a fixing indicator, and are thus protected from automatic changes.
4. If you select a number of schedule lines, you can go to the next line by selecting *Next schedule line.*
5. If the consistency of the usage probabilities are to be checked automatically select *Auto.consistency.*

See also:

[Copying Usage Probabilities from LIS \[Page 177\].](#)

Integrating LIS

Integrating LIS

Procedure

To copy data from LIS, proceed as follows:

1. In the transaction Create/maintain Planned Independent Requirements, choose Settings → Assign info.structure.
2. Enter the info structure of the combination value keys and the appropriate version of the info structure.

The info structure is assigned to the current version of the planned independent requirements.

3. Select the button Conf. supporting pnt.

The system displays the dialog box, *Configuration: Maintaining Usage Probabilities*. Only the info structure for the combination value keys is of relevance. The key figures contained in the info structure are displayed with reference to the individual combination value keys in the statistics column of the dialog box.

4. To copy the key figures to the usage probabilities, select the combination value keys of the key figures to be copied, and position the cursor in the statistics column to be copied.
5. Choose *Copy*.

Firmed combination value keys are not changed just as they are not changed in the automatic correction. Combination value keys are automatically firmed when you enter them manually on the *Configuration supporting point* screen. See [Processing Configuration Supporting Points \[Page 113\]](#).

The key figure is displayed as a quantity or as a probability depending on whether a required quantity or a usage probability is maintained.

If no info structure is assigned, the system automatically assigns the standard info structure, **S137** or **S136** with version **000**.

Creating Planning Profiles for Char. Planning

Prerequisites

A configurable material must exist before you can create a planning profile.

The planning tables must be created in Demand Management.

- Define the combination value keys.
- Enter characteristics for use in planning profiles.

Procedure

1. Choose *Demand Management* → *Master data* → *Planning profile*.
2. Enter the name of a configurable material, then choose *Change*.
3. Enter a new profile name.
4. Choose *Expand* → *New Entry*.
5. Enter the names of the planning tables you need for characteristics planning. These names identify the planning table for use in Demand Management.

Result

The planning tables contain the combination value keys that you defined in Variant Configuration. You can now flag these combination value keys as relevant to planning or not. See [Flagging a Comb. Key as Relevant for Planning \[Page 116\]](#).

Flagging a Comb. Value Key for Planning

Flagging a Comb. Value Key for Planning

Use

In order to maintain usage probabilities, you must flag them as relevant for planning in the planning profile.

Prerequisites

Create the profile in the pre-planning tables in Demand Management. See [Creating Planning Profiles for Char. Planning \[Page 115\]](#).

Procedure

1. Choose *Demand Management* → *Master data* → *Planning profile*.
2. Select a material, then choose *Change*.
A list of the planning profiles for the material you selected is displayed.
3. Select the planning profile you want to edit, then choose *Expand*.
The identifying titles of the planning tables and the associated combination value keys appear in a list.
4. To flag a combination value key as relevant for planning, activate the planning relevancy checkbox.
5. Save your work.

Result

When you activate a combination value key in the planning profile, the characteristic associated with the combination value key is considered during demand planning.

Characteristics Planning w/ Dependent Req'ts (56)

Purpose

With this strategy, planned independent requirements are created for configurable materials. In addition, the usage probabilities for combination value keys are entered in the configuration supporting points. The requirements for components are automatically calculated by multiplying the component quantity by the usage probability. The dependencies between characteristics are also taken into account for this calculation.

The allocation takes place on the header level; in other words, sales orders consume the configurable material's independent requirement, **not** the component's dependent requirements.

Prerequisites

In addition to the usual master data settings such as creation of BOMs, routings and the various configuration data (Configuration: Classes, Characteristics, Configuration Profile, Object Dependencies), you must maintain the following master data settings. For Classes and Characteristics, choose *Logisitcs* → *Central functions* → *Classification*. For Configuration profiles and Object dependencies, choose *Logisitcs* → *Central functions* → *Variant configuration*.

- Material Master
 - Item Category group, for example, **0002**
 - Strategy group **56**
 - Consumption parameters (*Consumption Mode, Fwd Consumption, Bwd Consumption*), so that planned independent requirements can be found
- Components:
 - Consider setting the Individual/Collective indicator to **2**.
 - In order to get dependent requirements from the planning of configurable materials, components should **not** be configured with strategy group **70** or **59**.
- Mark those characteristics that should have a usage probability in demand management as *Relevant for planning*.

See also:

[Comparing Strategies 56 and 89 \[Page 126\]](#)

[Creating PIRs for Characteristics Planning \[Page 108\]](#)

[Strategies for Configurable Materials \[Page 98\]](#)

[Creating a Configuration Profile](#)

[\[Ext.\]Dependencies \[Ext.\]](#)

[Creating a Characteristic \[Ext.\]](#)

[Classifying a Characteristic \[Ext.\]](#)

Sample Scenario: Strategy 56

Sample Scenario: Strategy 56

Process Flow

Stage 1: Demand Management

Enter the planned independent requirements on the configurable material level.

Maintain the combination value keys usage probabilities individually per date and quantity (referred to as *configuration supporting point*) as described in [Creating PIRs for Characteristics Planning \[Page 108\]](#).



If you use a multi-level configuration (also referred to as a *nested KMAT*), you can only enter the usage probabilities at the top-level (in other words, the \$ROOT material). You cannot enter usage probabilities for the lower levels.

For the configurable material, the planning results in a stock/requirements list displays the following information:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	--->	Planning w/o assemb.		
<reqdat1>	IndReq	VSE	100-	100-
<reqdat2>	IndReq	VSE	100-	200-
<reqdat3>	IndReq	VSE	100-	300-

Stage 2: Procurement before Sales

The dependent requirements are created in the MRP run. The actual required component quantity is calculated as the product of usage probability and the original component quantity from the BOM. See [Flagging a Comb. Value Key as Relevant for Plannin \[Page 116\]g.](#)

For a component, which was planned with a usage probability of 40%, the following stock/requirements list results:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	DepReq.	DPC1	40-	40-

Sample Scenario: Strategy 56

<reqdat1>	PIOrd.	01234/ExtP	40+	0
<reqdat2>	DepReq.	DPC1	40-	40-
<reqdat2>	PIOrd.	001235/ExtP	40+	0
<reqdat3>	DepReq.	DPC1	40-	40-
<reqdat3>	PIOrd.	000126/ExtP	40+	0

The procurement proposals lead to the stock for the components.

Stage 3: Sales Order

The entry of a sales order with a specific configuration results in an allocation of the planned independent requirement for the configurable material; this is similar to [strategy 50 \[Page 81\]](#).

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<today>	Cstock	000987/0010		0
<orddat>	Order	87/0010/001	10-	10-
<today>	→	Planning w/o assemb.		
<reqdat1>	IndReq	VSE	90+	90+
<reqdat1>	PIOrd.	00456/IndR	100+	10+
<reqdat2>	IndReq.	VSE	100-	90-
<reqdat2>	PIOrd.	00457/IndR	100+	10+
<reqdat3>	IndReq.	VSE	100-	90-
<reqdat3>	PIOrd.	00458/IndR	100+	10+

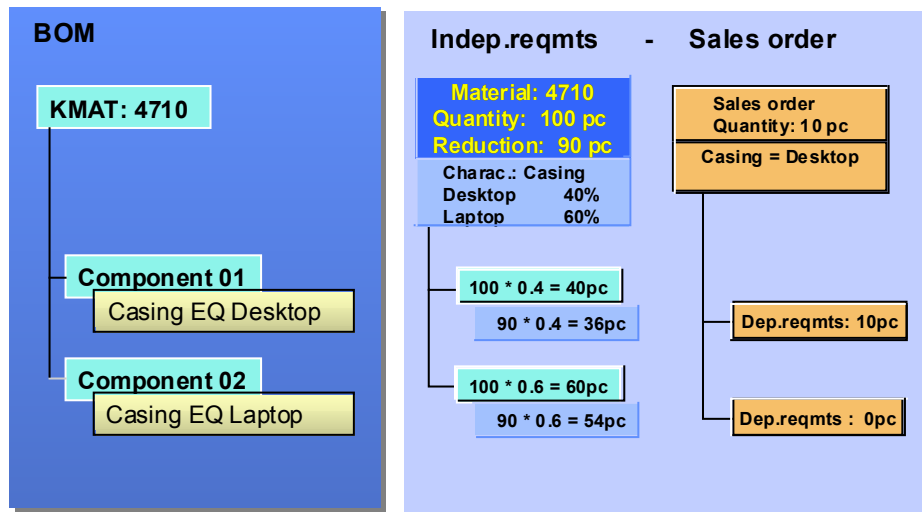
The requirements type display for strategy 56 is **KEKS**, as seen in the *Procurement* tab strip of the Sales order.



The allocation at the level of the configurable material leads to a reduction of all dependent requirements of the configurable material. Also the components that are not sold with the actual order will be reduced with the next MRP run.

Consumption at Configurable Material Level

Sample Scenario: Strategy 56

**Stage 4: Procurement after Sales**

Production of the configurable material takes place. This stage is similar to [strategy 50 \[Page 81\]](#).

Stage 5: Goods Issue for Delivery and Reduction of Planning

The goods issue of the configurable material takes place. This stage is similar to strategy 50.

Assembly Processing w/ Char. Planning (89)

Purpose

This strategy creates automatically planned independent requirements for the component of a configurable material. This works as described in [strategy 70 \[Page 58\]](#). The big advantage is that you don't have to enter the component's quantities manually any more. They are calculated based on the quantities of the planned independent requirements for the configurable material and the usage probabilities of the corresponding characteristics.

The allocation takes place at the component level, rather than at the configurable material level. As a result, MRP planning runs do not change the components' planned requirements based on allocation at the configurable material level as seen in [strategy 56 \[Page 117\]](#).

The planned independent requirement for component may be entered manually, as described in strategy 70. However an easier and more efficient method of producing independent requirements for the component of the configurable material is through R/3's Long Term Planning process.

Prerequisites

In addition to the usual master data settings such as creation of BOMs and routings and the various configuration data (Configuration: Classes, Characteristics, Configuration Profile, Object Dependencies) the following has to be set up. For Classes and Characteristics, choose *Logisitcs* → *Central functions* → *Classification*. For Configuration profiles and Object dependencies, choose *Logisitcs* → *Central functions* → *Variant configuration*.

- Material Master
 - Item Category group; for example. **0002**
 - Assign strategy group **89**
 - Availability Check **01**, to check with replenishment lead time
- Components
 - Consider setting the 'Individual/Collective' indicator to **2**.
 - Components must have strategy group '70' (or '59') in order to get dependent requirements from the planning of a configurable material.
 - 'Mixed Indicator' must be set to **1**.
 - Consumption parameters (Consumption Mode, Fwd Consumption, Bwd Consumption), are activated such that planned independent requirements can be impacted
- Mark those characteristics as 'relevant for planning', which should have a usage probability in demand management as described in [Creating PIRs for Characteristics Planning \[Page 108\]](#)

See also:

[Comparing Strategies 56 and 89 \[Page 126\]](#)

Sample Scenario: Strategy 89

Sample Scenario: Strategy 89

Process Flow

Stage 1a: Creating Inactive Planned Independent Requirements

Planned independent requirements are entered exactly as described in stage 1 of [strategy 56 \[Page 118\]](#). In other words, usage probabilities are entered for characteristics.

With this strategy the planned independent requirements have to be entered in an inactive version. Make sure that the checkbox 'active' is not marked. Use a special version, for all materials using this strategy, because long term planning requires a special version later on.

You cannot see the planned independent requirement in the stock/requirements list, because it is not active.

Stage 1b: Creating and Releasing the Planning Scenario in Long Term Planning:

Long Term Planning utilizes the version numbers entered before to differentiate these simulative versions from the demand program's operative versions. In long term planning you can either create new versions of planned independent requirements or you can copy existing planned independent requirements to a simulative version number. A special report is available for copying existing versions.

Create and release a planning scenario using *Logistics → Production → Master Planning → Long-Term Planning → Scenario → Create*. This scenario provides the control data for long-term planning.

- Allocate the plants to be planned with this scenarios, choose *Edit → Plants* and 'new entry'
- Allocate the independent requirement's versions to be used for planning. Only the version to be used in the field 'version' is required entry for this example. Choose *Edit → Plannd Indep. Req.* and 'new entry'
- Choose *Edit → Release and Save*

Long Term Planning is here used as a tool only. Refer to the online documentation PP Long Term Planning for further information.

Stage 1c: Carry out MRP for Long Term Planning

Similar to the operative planning there exist among others single item and multiple item MRP programs for the long term planning. Use one of these programs (e.g. *Logistics → Production → Master Planning → Long-Term Planning → Long-term planning → Planning run → As background job* for the created scenario) to create simulative dependent requirements in the long-term planning

For the configurable material there is only a stock/requirements list in long term planning, which could look as follows:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity

Sample Scenario: Strategy 89

<today>	Stock			0
<today>	--→	Planning w/o assemb.		
<reqdat1>	Ind Req	VSE	100-	100-
<reqdat2>	Ind Req	VSE	100-	200-
<reqdat3>	Ind Req	VSE	100-	300-

Stage 1d: Transferring Requirements

In order to plan and consume requirements in the operative system, the simulative requirements created in long term planning must be copied to the operative system as independent requirements. This is accomplished by *Logistics → Production → Master Planning → Long Term Planning → Planned indep. requirements → Copy sim requirements*; specify the independent requirements target version, and the 'Date Type' in the aggregation field. The system will copy the simulative requirements from long term planning to the operative system.

Now there exist planned independent requirements for the components of the configurable material that have been set up according to master data setup (i.e. strategy **70**, Mixed Indicator **1**, and Individual/Collective Indicator **2**). They have exactly the same properties as planned independent requirements created manually as described in 'Planning at Assembly Level (70)' in chapter 3.

For a component, which was planned with a usage probability of 40%, the following stock/requirements list in the operative planning results:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			0
<reqdat1>	IndReq	VSFB	40-	40-
<reqdat1>	PIOrd	001234/ExtP	40+	0
<reqdat1>	IndReq	VSFB	40-	40-
<reqdat1>	PIOrd	001235/ExtP	40+	0
<reqdat1>	IndReq	VSFB	40-	40-
<reqdat1>	PIOrd	000126/ExtP	40+	0

The procurement proposals lead to the stock for the components.

Stage 2: Procurement before Sales

The procurement of components is started based on the planned independent requirements created in stage 1 similar to strategy [Planning at Assembly Level \(70\) \[Page 58\]](#).

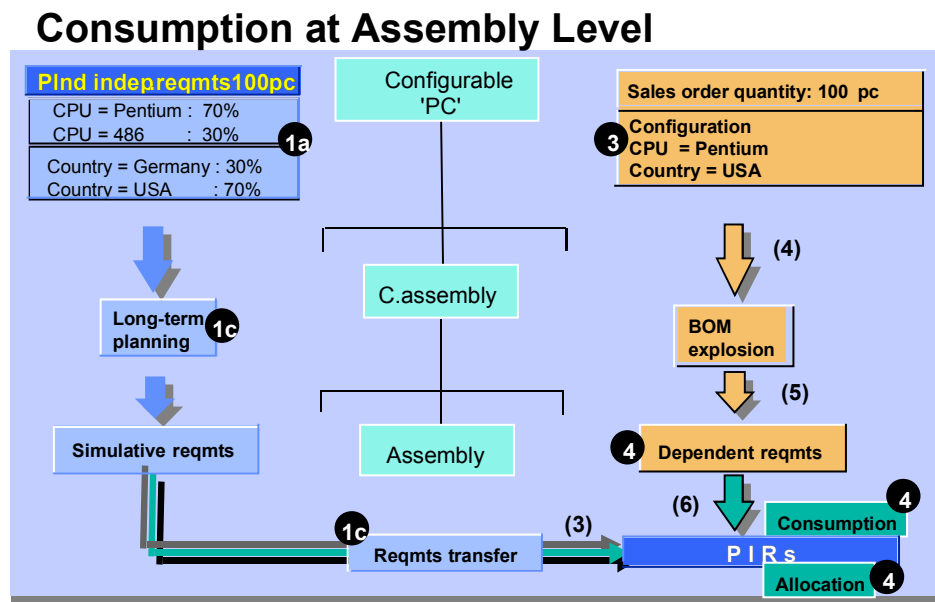
Stage 3 and 4: Sales Order and Procurement after Sales

Sample Scenario: Strategy 89

The sales order is created for the configurable material. No consumption takes place on the level of the configurable material.

The operative MRP run creates dependent requirements for the components. Opposed to the strategy, [Characteristics Planning w/ Dependent Req'ts \(56\) \[Page 117\]](#) the requirements for the components are allocated to the planned independent requirements for the components, because the components should be planned with strategy 70.

In comparison to strategy 56 only the "right" components get allocated, when entering a sales order.



For the component mentioned above the following stock/requirements list in the operative planning results:

Date	MRP element	MRP element data	Received/ required quantity	Available quantity
<today>	Stock			100
<reqdat1>	DepReq	DPC1	10-	90
<reqdat1>	IndReq	VSFB	30-	60
<reqdat2>	IndReq	VSFB	40-	20
<reqdat3>	IndReq	VSFB	40-	20-
<reqdat3>	PIOrd	000126/ExtP	20+	0

Stage 5: Goods Issue

The goods issue of the components reduces the planned independent requirements for the components. The goods issue of the configurable material has no consequences, because the planned independent requirements for the configurable material are not active.

Comparing Strategies 56 and 89

Comparing Strategies 56 and 89

Strategy	Characteristics Planning w/ Dependent Req'ts (56) [Page 117]	Assembly Processing w/ Char. Planning (89) [Page 121]
Long Term Planning	no	LTP scenario
Components	No specific strategy group at component level	Strategy group 70, <i>mixed MRP = 1</i>
Creation of planned independent requirements	Active version	Inactive version
Consumption and reduction at header level	Allocation at configured material level, and indirectly (after MPR), reduction of all components	No allocation
Consumption and reduction at component level	Consumption at component level does not take place; however, requirements for components are indirectly reduced for all components after consumption at header level	Only components that are used in actual configuration are reduced
Example for reduction at component level: Planned quantity 100 PC Usage probability of combination value key A = 70% Usage probability of combination value key B = 30% Resulting in requirements for 70 PC of component A and 30 PC of component B	An order for 20 PC (featuring characteristic A) is entered resulting in: The requirement for the components is changed to: 56 PC (80 PC * 70%) of component A and 24 PC (80 PC * 30%) of component B	An order for 20 PC (featuring characteristic A) is entered resulting in: The requirement for the components is changed to: 50 PC (70 PC – 20 PC) of component A and 30 PC (30 PC – 0 PC) of component B

This leads to the following conclusions:

	Strategy 56 w/ dependent req.	Strategy 89
General	Easier to handle (Batch run after completion of planning, monthly), especially if you cannot plan precisely or if you only want to plan capacity on header level	More precise planning of components Better overview of component situation

Comparing Strategies 56 and 89

Performance	MRP has to plan customer order AND planning of demands management all the time	Planning of demands management is done in LTP (typically only in the planning periode, for example a week or month) and independent of MRP
-------------	--	--

Make-to-Order Production w/ Configuration (25)

Make-to-Order Production w/ Configuration (25)

Purpose

This strategy, similar to [Make-to-Order Production \(20\) \[Page 93\]](#), is used when planning of the parent product is not required or not possible. Components must be planned by other means, if necessary.

This strategy is used for configurable materials. Configuration is required.

Prerequisites

You must maintain the following master data settings

- Item category group for example, **0002**
- Strategy Group **25**

Process Flow

1. **Stage 1: Demand Management**

Does not apply.

2. **Stage 2: Procurement Before Sales**

Does not apply.

3. **Stage 3: Sales Order**

You enter the variant material and its configuration. The default combination values apply and can be used as the default configuration.

4. **Stage 4: Procurement After Sales**

Variant material is produced.

5. **Stage 5: Goods Issue for Delivery and Reduction of Planned Independent Requirements**

Goods Issue for the configurable material takes place.

See also:

[Comparing Strategies 25 and 26 \[Page 103\]](#)

Strategies for Assembly Orders

See link to general overview of assembly orders.

Assembly Processing with Production Orders

Assembly Processing with Planned Orders

Assembly Processing with Projects

Assembly Processing with Variant Configuration (strategy 89)

Assemble-to-order

Assemble-to-order

An assemble-to-order environment is one in which the product or service is assembled on receipt of the sales order. Key components are planned or stocked in anticipation of the sales order. Receipt of the order initiates assembly of the customized product. Assemble-to-order is useful where a large number of finished products can be assembled from common components. In the R/3 System, assemble-to-order is a special kind of make-to-order planning strategy; you define planning strategies in Customizing.

If you use an assemble-to-order strategy, you can check material and resource availability at the moment when the sales order is created. You can quote your customers reliable delivery dates because you know whether the desired quantity will be available on the desired date. If the complete quantity cannot be committed, the system tells you when the total quantity will be available and whether you can commit a partial quantity.

As the finished product is not usually kept in stock, an availability check is carried out at component level when the sales order, quotation, or inquiry is created. The results of the availability check are as follows:

- The committed order quantity of the sales order is based on the component with the smallest available quantity.
- The confirmed delivery date of the sales order is based on the availability date of the component that will be available last.

Another important factor for ensuring that customers are provided with reliable due dates is continuous feedback between sales and production. In the R/3 System, changes to quantities or dates for production or procurement of components are passed back to the sales order of the finished product where the committed quantity or confirmation date is also changed. Similarly, changes to quantities or dates in the sales order are passed on to production and/or procurement.

Assemble-to-order: Process Flow

When you create a sales order, a customer quotation, or an inquiry with one of the assemble-to-order planning strategies, the system automatically creates an assembly order. An assembly order is one of the following procurement elements:

- Planned order
- Production order
- Process order
- Network (project)
- Service order

The choice of procurement element is determined by the strategy group in the material master record.

The system carries out scheduling for the assembly order. You can also have the system carry out capacity checking when the sales order is created. Furthermore, the bill of material is exploded for the assembly order to determine the required components. The availability of each component is then checked. This check can be carried out either according to ATP logic or against planned independent requirements at assembly level. It determines what quantity can be committed on the desired delivery date. If no quantity can be committed, the system displays the

Assemble-to-order

missing parts. If you carry out the check using ATP logic, the system also determines dates for partial and final confirmation.

If a material is configured in the sales order, the results of configuration are copied to the assembly order. The system then checks the availability of the components that were selected on the basis of configuration.

If the assembly order is a planned order, any changes made to the sales order become immediately effective in the planning order. If the assembly order is a production order or a network, changes made to the sales order become effective in the production order or network on condition that its status allows this.

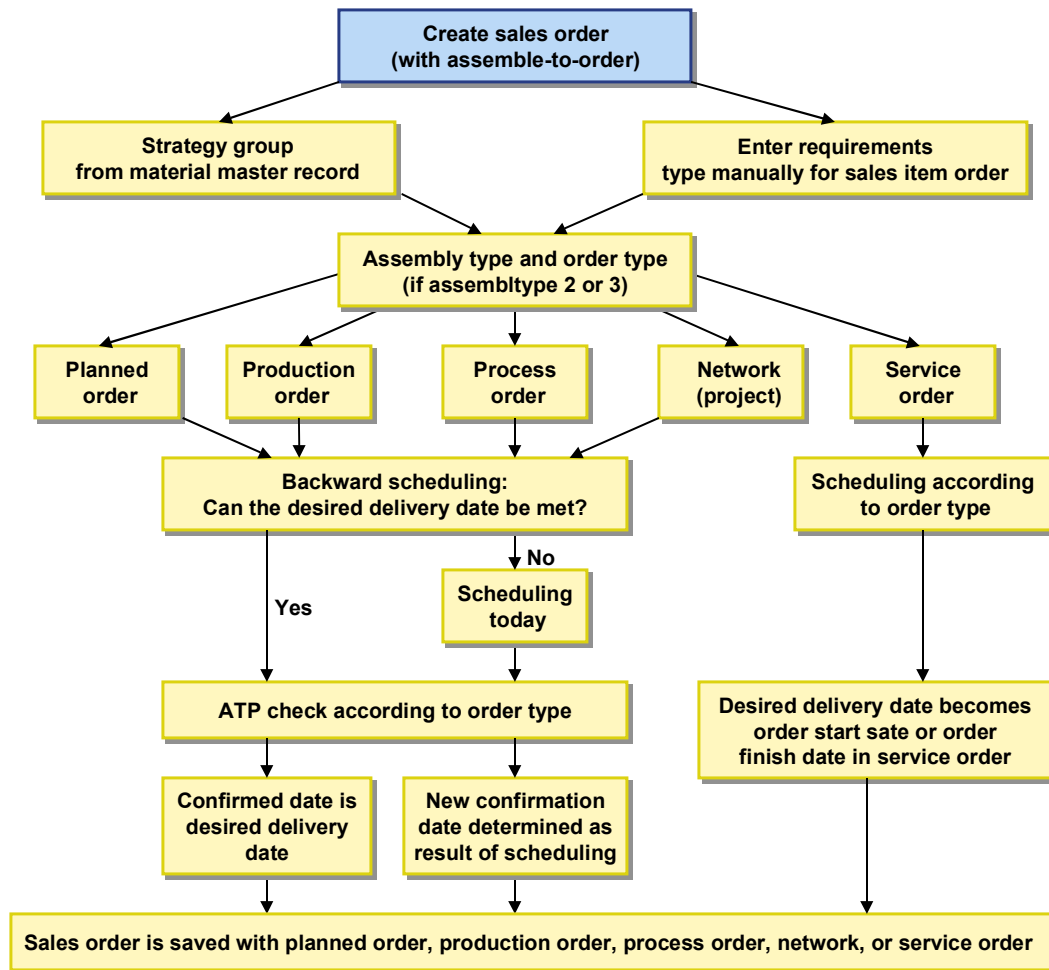
By default, changes to the assembly order automatically adjust the committed quantities and dates in the sales order. However, you can also configure the system so that changes made to the assembly order do not affect the sales order.

Procedures for Assemble-to-order

- 1:1; that is, exactly one procurement element exists for each sales order item. This is known as the static procedure.
- A loose link exists between sales order items and procurement elements; you can split quantities and dates both in the sales orders and in production. This is known as the dynamic procedure.

Static assemble-to-order is represented in the following diagram:

Assemble-to-order



Assemble-to-order with Production Orders

Assemble-to-order with production orders is particularly useful if you:

- Require **status management** functionality

You can use status management, for example, to

 - Document the current processing status of an object
 - Allow or forbid certain business transactions
 - Group or select objects by status (for example all orders with the status released, or all components with the status missing part)
 - Trigger rework functions automatically (using trigger points)
- Want to carry out business functions at **operation level**, such as:
 - Releasing operations
 - Printing shop papers
 - Entering completion confirmations
- Keep track of **costs** during the production process

Every confirmation or goods movement carried out for the production order causes an update of the actual order costs.
- Want to use the **collective order** functionality

A collective order is a structure that links production orders over several manufacturing levels. It offers the following advantages:

 - Any changes to dates or quantities have an immediate effect on any dependent orders within the collective order.
 - No goods movements are required for sub-assemblies
 - You can carry out an availability check across all production levels
 - Each production order is automatically settled to the superior production order. The top production order is then automatically settled to the sales order.

Collective orders are especially suited to the following types of production:

 - Continuous flow production
 - Production using parallel production lines
 - Make-to-order production
- Want to use the **rework** functionality

You can use rework functionality in order to compensate for malfunctions or errors that occur during the production process.

With *unplanned* malfunctions/errors, you can

 - Insert rework operations
 - Insert reference operation sets

Assemble-to-order with Production Orders

- Create rework orders

With *planned* malfunctions/errors, you can

- control rework by using trigger points
- Produce **co-products**

Only if you set up assemble-to-order with production orders can you use co-products.

Production Order Created Directly or via a Planned Order

When creating a sales order, you do one of the following:

- Create a production order directly

Here, you can make immediate use of all the production order functionality (such as the status maintenance).

- Create a planned order first which is converted into a production order at a later date. In this case, you can also implement planning decisions (such as external procurement or in-house production) later on in the assembly process.



In assemble-to-order, you can only convert planned orders into production orders if you use a strategy group or requirements class with a **dynamic** assembly type. For more information, see [Assembly Processing With Planned Orders \[Page 138\]](#) and [Assembly Processing With Projects \[Page 137\]](#).

Assemble-to-order with Variant Configuration

You can also use assemble-to-order for configurable products. Here, the availability check can be carried out at component level only.

Configuration is carried out as usual. Depending on the selection of the strategy group in the material master record of the configurable material, a planned order, production order, or network can be created parallel to the sales order. The characteristic values assigned to the configurable material are passed on to the planned order, production order, or network. The BOM components and operations or activities you require are selected on the basis of these characteristic values.

The components selected as a result of the characteristic values are included in the availability check for assembly order processing. Any of these components that are in stock are reserved immediately.

However, only the components on the top level of the BOM are included in the availability check.

Problems occur if the BOM contains other configurable materials. Configurable materials are not kept in stock, so they are not included in the availability check. The components of these subordinate configurable materials are not checked for availability either because the availability check is restricted to the top level of the BOM.

You have the following options for checking the availability of components of subordinate configurable materials:

- You can define the configurable assembly as a phantom assembly. Phantom assemblies are not manufactured - the components are used directly in the finished product.

To define a configurable assembly as a phantom assembly, enter the **special procurement key 50** on the *MRP 1* screen of the material master record. However, this means that you cannot create a production order for this specific assembly.

- You can use the **collective order** functionality in shop floor control. Collective orders allow you to link planned orders or production orders across several manufacturing levels. For more information on collective orders, see the SAP documentation *PP Production Orders Guide*.

If you select assembly order processing with a network, the procedure for configuring the material depends on whether the material and the standard network are allocated to the same class or to different classes.

- Usually, the material and the standard network are allocated to the same class. Characteristic values assigned in the sales order are directly passed on to the Project System, and a network is created.
- If the material and the standard network are allocated to different classes, you assign characteristic values separately for the material and the standard network.

When a network is created, you must configure the standard network separately if the system recognizes that the material and the standard network are allocated to different classes.

If you are using assembly order processing with a network and you make subsequent changes to the configuration of the material in the sales order, the existing network is deleted and a new network is created. This is only possible if the activities in the network have not yet been processed. You cannot change the configuration of the material in the sales order once processing of the activities in the network has started.

Assemble-to-order with Variant Configuration



Any manual changes to a network are overwritten when a new network is created.

Assemble-to-order with Projects

Use networks and projects for assemble-to-order if you manufacture or engineer your products to order and you are not sure exactly how you are going to execute the sales order:

- If your customer orders a product whose manufacturing or assembly process is so complex that you consider it a project. With networks, you can plan in the mid- to long-term, for example, when the actual assembly process does not start for another 6 months.
- If your customer orders a customized or configured product that you are manufacturing or assembling for the first time. With a network, you have a flexible framework for rough-cut planning when you enter the sales order that you can add more detail to, and, if necessary, create production orders.
- If your manufacturing or assembly process is characterized by technical or time interdependencies, such as, one activity cannot finish until the preceding activity has finished.
- If you want to use the unique functionality of the Project System to carry out your projects, for example, you can create a work breakdown structure (WBS) for a project at the same time that you create a sales order.



You can still use planned orders and production orders if you choose to create a network from a sales order.

Account Assignment

In assemble-to-order with projects you can choose where the costs are collected: for example, in a work breakdown structure element (WBS element), in the sales order, or in the network.

Network is...	Account assignment is made to...	The standard WBS element from the standard network header...
header-assigned	sales order	is not copied into the network header
activity-assigned	project	is copied into the network header as a WBS element. If no standard WBS element has been entered in the standard network header, you have to specify a WBS element when you save.
header-assigned	project	is copied into the network header as a WBS element. If no standard WBS element has been entered in the standard network header, you have to specify a WBS element when you save.



It is not possible to assign an network with activity account assignment to a sales order.

Assemble-to-order with Planned Orders

Assemble-to-order with Planned Orders

Assemble-to-order with planned orders is particularly useful:

- If production control is managed using production orders (see [Special Settings for Projects \[Page 142\]](#)) but you do not want to create the production order along with the sales order. You can use the planned order to fine-tune planning and then convert it into a production order at a later date.
- If production is controlled using Repetitive Manufacturing. The planned order is then the run schedule quantity which you can plan using the planning and control tools provided by Repetitive Manufacturing. In this procedure, the goods receipt for the material can also be posted with reference to the sales order number. Thus, the costs can also be directly assigned to the sales order even in Repetitive Manufacturing.

Assemble-to-order with Repetitive Manufacturing

Use assemble-to-order with Repetitive Manufacturing if several of the following points apply to your situation:

- Production of the finished product is carried out in clear and simple steps.
- The assembly is produced in a constant flow over the production lines.
- Simple routings are used, or assembly can be carried out without routings.
- The components can be staged anonymously at the production lines. The components are procured, for example, with KANBAN using consumption-based planning, or with the planning strategy "subassembly planning".
- You want to reduce the effort required for production control and backflushing.

Sample Scenario for Assemble-to-order with Repetitive Manufacturing

- The production process is kept as simple as possible. There are only a limited number of production levels involved in producing the product. The number of components is relatively low, however, it is quite possible to produce a large number of finished products due to configuration options.
- The components required for final assembly are selected via the configuration in the sales order and are staged at the production line anonymously. You can use the assembly order to carry out an availability check for the selected components. Components that are always readily available are excluded from the availability check by setting the appropriate indicator in the material master record.
- The finished product is assembled without a routing and the operations are similar. The planning table in Repetitive Manufacturing provides the planner with an overview of the production rates. Here, the planner can also check capacities for the production lines and distribute the ordered quantities to the production lines with available capacity.
- When production is complete, the goods receipt for the finished product is posted with reference to the sales order number - a special function exists in Repetitive Manufacturing for this. Once the goods receipt is posted, the goods are withdrawn for the specific sales order and the assembly order is deleted.
- For the scenario described above, you can also work without using the planning functions of Repetitive Manufacturing. In this case, capacity planning is not carried out

Assemble-to-order with Planned Orders

from the planning table in Repetitive Manufacturing, but instead, using the capacity leveling functions in capacity planning. However, you can still use the backflushing functions in Repetitive Manufacturing.

For more information on Repetitive Manufacturing, see *PP Repetitive Manufacturing*.

Special Settings for Production Orders

Special Settings for Production Orders

All Customizing settings that you require for assembly processing with production orders, such as strategy group, requirements class and order type are already predefined by SAP in the Standard System.

Strategy Groups

The following strategy group is predefined for production orders:

- Strategy group 82: assembly processing with production orders
Here, the static procedure (that is, the 1:1 link between production order and sales order) is preset as the assembly type.

Requirements Type and Requirements Class

Strategy group 82 refers to the following requirements type or requirements class in the Standard System.

- requirements type KMFA
- requirements class 201

Order Type

The following order type for production orders is predefined in the requirements type 201:

- Order type PP04: Production order with assembly processing



If, for some reason, you want to use an order type that is different to the one predefined by SAP, you must make sure that the following scheduling parameters are set for the order type:

- Key 'Backward scheduling'
- Indicator 'Adjust basic dates'

If you use all the standard system settings, you do not need to make any additional settings in Customizing:

Bills of Material

For assembly processing with production orders, the finished product must have a valid bill of material.

Special Settings for Planned Orders

All the settings in Customizing you require for assembly processing with planned orders are already predefined by SAP. These settings include, for example, the strategy group and the requirements class. The settings in the system standard allow the planned order to be converted into a production order and in Repetitive Manufacturing it can be used as a run schedule quantity.

Strategy Group

The following strategy group is predefined for planned orders:

- Strategy group 81: assembly processing with planned orders
Here, the dynamic procedure (that is, the loose link between planned order and sales order) is preset as the assembly type.

Requirements Type and Requirements Class

Strategy group 81 refers to the following requirements type or requirements class in the Standard System:

- requirements type KMSE
- requirements class 200

Special Settings for Projects

Special Settings for Projects

SAP has predefined all the settings in Customizing you need to use networks in assembly processing: strategy group, requirements class, network type and condition type. If you use the standard settings, you do not have to make any additional settings in Customizing. However, you will have to make settings for your materials and standard networks.

Strategy Groups

SAP has predefined the following strategy groups for networks and projects:

- 83: Assembly processing with networks with requirements class 202
- 85: Assembly processing with network/project with requirements class 212



If you do not assign an appropriate MRP controller or strategy group to your material, you will not be able to create a network from a sales order.

See also:

For more information on strategy groups, refer to the section entitled [Planning Strategies \[Ext.\]](#).

Requirements Classes

SAP has predefined the following requirements class for networks:

- 202: A network with network type PS05 (header account assignment) and account assignment category E (assignment to the sales order).
- 212: A network with network type PS04 (activity account assignment) and account assignment category D (assignment to project or WBS element).

See also:

For more information on requirements classes, refer to implementation guide *Production* under *Requirement types/requirement classes*.

Network Types

SAP has predefined the following network types:

- PS04 and PS05: Networks with scheduling type *backwards*, where the scheduled dates are calculated automatically and the basic dates are adjusted automatically. When you set the indicator for the basic dates, the system updates the network basic dates with the scheduled dates and then writes them into the sales order as confirmed dates.



If you want to use a different network type than the ones which SAP has predefined for you, you have to set the indicators for the scheduling parameters: *key* and *Indicator: adjust basic dates*.

See also:

For more information on network types, refer to the SAP documentation *PS - Project System*.

Prerequisites for Networks

To be able create a network from a sales order you need:

A Material Master Record

The data in the material master for the product controls whether a network is created. The strategy group in the material master controls whether a network can be created from a sales order. The requirements class assigned to the strategy contains all the important information for this, such as assembly type, network type, configuration, account assignment category.

See also:

For more information on creating a material in the material master, refer to the SAP documentation *LO - Managing Material Master Data*

A Standard Network for Production or Assembly

The network that is created in the background from a sales order is always copied from the standard network to which the material in the sales order is allocated. You can also assign the standard network to a standard WBS element so that the sales order can be settled to a project, for example.

See also:

For more information on creating a standard network, refer to the SAP documentation *PS - Project System*

Network Settings

In the standard network, you can make the link between the material, the network to be created for assembly processing, and the account assignment. Every time you create a sales order for the material you entered here, the system will automatically copy this standard network to create the network. If you do not enter any data here, you must enter the required data online every time you create a sales order for assembly processing.

You make the settings from the *Basic data* menu, by selecting the menu options *Standard structures* → *Alloc mat* → *std.ntwk*.

The *Network Parameters - From Sales Order* screen is displayed.

On the detail screen you allocate a material to a standard network as well as to a standard WBS element for account assignment.

Special Settings for Repetitive Manufacturing

Special Settings for Repetitive Manufacturing

For assembly processing with Repetitive Manufacturing, the same strategy group and requirements type/class are used as described in section [Special Settings for Planned Orders \[Page 141\]](#).

If you use the planning table in Repetitive Manufacturing, there are more settings you have to make.

Repetitive Manufacturing for Make-to-Order Production With or Without the Planning Table

The special settings for Repetitive Manufacturing depend on the following criteria:

- whether you want to use the planning table in Repetitive Manufacturing to assign the production quantities to production lines or to carry out capacity planning, for example
- whether you do not want to use the planning table to plan the run schedule quantities and instead, for example, you want to use:
 - the current stock/requirements list from MRP to gain an overview of the run schedule quantities
 - the capacity leveling functions from the stock/requirements list or from capacity planning to adjust the master plan.

Repetitive Manufacturing for Make-to-Order Production with Planning Table

If you want to use the planning table, you must maintain the following data:

- In the material master record:
 - You must allow Repetitive Manufacturing for the material.
 - You must enter a Repetitive Manufacturing profile. Various control parameters are contained in this profile, for example, for the movement types in backflushing and for posting costs.

We recommend that you use a profile for which the cost collector has to be created manually as a cost collector is not required for make-to-order production.

The Repetitive Manufacturing profile also determines whether the costs are to be posted with or without activities (machine costs, labor costs, and so on) when backflushing. If you decide to post with activities, they are then automatically posted with the final backflush.
 - You must create a production version containing the data relevant for production - alternative BOM, group, group counter, production line, and so on. If you work without routings, you must enter at least the BOM and the production line in the production version.
- In the Repetitive Manufacturing menu:
 - You must create a run schedule header with reference to the production version.

Repetitive Manufacturing for Make-to-Order Without the Planning Table

If you choose not to work with the planning table, you must make the following settings in the material master record:

Special Settings for Repetitive Manufacturing

- You must enter a Repetitive Manufacturing profile. Various control parameters are contained in this profile, for example, for the movement types in backflushing and for posting costs.

We recommend that you use a profile for which the cost collector has to be created manually as a cost collector is not required for make-to-order production.

The Repetitive Manufacturing profile also determines whether the costs are to be posted with or without activities (machine costs, labor costs, and so on) during backflush. If you decide to post with activities, they are then automatically posted with the final backflush.



The special goods receipt posting with reference to the sales order is available whether you work with or without the planning table.

Special Setting for Variant Configuration

Special Setting for Variant Configuration

You can use each of the available procurement elements to carry out assemble-to-order with variant configuration. To do so, you must set variant configuration to *Obligatory* for each of the strategy groups or planning strategies in the assigned requirements class.

Table of Planning Strategy Assignments

Table of Planning Strategy Assignments

In the system, the planning strategies are recorded in Customizing by a combination of requirements types from Demand Management and from sales order management. This combination of requirements types determines, for example, the consumption of planned independent requirements by customer requirements, or how the availability check is to be carried out.

The planning strategies are maintained in Customizing for Demand Management (under *Planned Independent Requirements* → *Planning Strategy* → *Define strategy*). The requirements types are combined for the planning strategy. The requirements types are, technically speaking, texts that represent the planning strategy in the application (Demand Management, Sales and Distribution). The requirements type is controlled by another key, namely, the requirements class. The requirements class contains all the control parameters required for Demand Management and sales and distribution. To maintain the planning strategy, combine the necessary requirements types and the corresponding requirements class is assigned automatically along with all the accompanying control parameters.



SAP recommends that you work with the planning strategies delivered in the standard system. However, if you want to change the texts of the planning strategies, you can do so via the requirements type.

This table (which can be found in Customizing for Demand Management; choose *Planned Independent Requirements* → *Planning Strategy* → *Define strategy*) shows the combinations of requirements types that have been defined for the planning strategies available in the standard system:

Strategy	Requirements type for independent requirements	Requirements type for customer requirements		
10 [Page 24]	LSF	Make-to-stock production	KSL	Sale from stock without independent requirement reduction
11 [Page 34]	BSF	Gross planned independent requirements	KSL	Sale from stock without independent requirement reduction
20 [Page 93]			KE	Individual sales order without consumption
25 [Page 128]			KEK	Make-to-order with configurable material
26 [Page 102]			KEL	Make-to-order for material variants

Table of Planning Strategy Assignments

30 [Page 20]	LSF	Make-to-stock production	KL	Sales order manufactured by lot size
40 [Page 12]	VSF	Planning with final assembly	KSV	Sales order with consumption
50 [Page 81]	VSE	Planning without final assembly	KEV	Make-to-order with consumption
52 [Page 40]	VSE	Planning without final assembly	KSVS	Make-to-stock with consumption without final assembly
54 [Ext.]	VSE	Planning without final assembly	KEKT	Make-to-order with consumption of variant
55 [Page 104]	VSE	Planning without final assembly	KELV	Make-to-order variant with consumption
56 [Page 117]	VSE	Planning without final assembly	KEKS	Make-to-order with consumption of characteristics planning
59 [Page 64]	VSEB	Planning; phantom assemblies		
60 [Page 87]	VSEV	Planning the planning material	KEVV	Individual customer with planning material consumption
63 [Page 48]	VSEV	Planning the planning material	KSVV	Make-to-stock with consumption of planning material
65 [Page 105]	VSEV	Planning the planning material	ELVV	Make-to-order variant with planning material
70 [Page 58]	VSFB	Planning for assemblies		
74 [Page 70]	VSEM	Planning for assemblies w/o final assembly		

Determination of the Requirements Type

Use

The requirements type contains the control parameters for planning and consuming planned independent requirements and customer requirements. Different requirements types or combinations of requirements types from planned independent requirements and customer requirements are defined for each planning strategy.

Activities

If you want the system to determine the requirements type when creating the planned independent requirements automatically, enter strategy groups for the corresponding materials in the material master record. If the strategy group allows a number of planning strategies, the system proposes the requirements type from the main strategy. You can overwrite this strategy using one of the alternative requirements types.

Assigning a Planning Strategy via the MRP Group

You can also assign the planning strategy via the MRP group.

1. Assign the **strategy group** to the **MRP group** (in Customizing for Demand Management, choose *Planned Independent Requirements* → *Planning Strategy* → *Assign strategy group to MRP group*). The MRP group is assigned to the material in the material master record.
2. If you have entered a strategy group or an MRP group containing the appropriate strategies in the material master record, you do not have to enter a requirements type in Demand Management.

The system determines the valid requirements type via the strategy group from the material master record and proposes this type automatically when creating independent requirements (or customer requirements). If the strategy group contains more than one planning strategy, the system proposes the requirements type of the main strategy. If necessary, you can overwrite this proposal using one of the requirements types from the alternative strategies.

Maintaining and defining strategies and strategy groups

The planning strategies represent the business procedures for planning and producing a material.

In the system, the planning strategies are recorded in Customizing by a combination of requirements types from Demand Management and from Sales Order Management. This combination of requirements types determines the consumption of planned independent requirements by customer requirements, or how the availability check is to be carried out.

The planning strategies are maintained in Customizing for Demand Management. Here, the requirements types are combined for the planning strategy. Technically speaking, the requirements types are texts that represent the planning strategy in the application (Demand Management, Sales and Distribution). The requirements type is controlled by another key - the requirements class. The requirements class contains all the control parameters required for Demand Management and Sales and Distribution. To maintain the planning strategy, you only have to combine the necessary requirements types and the corresponding requirements class is assigned automatically along with all the accompanying control parameters.

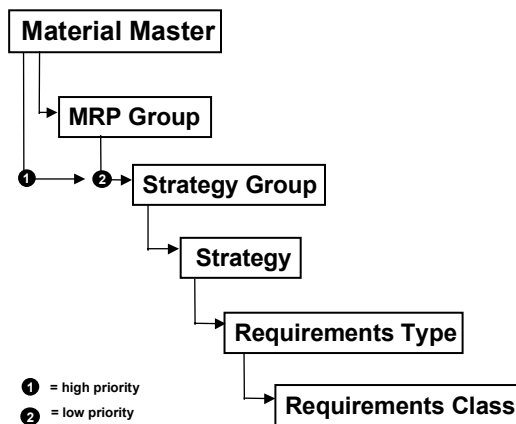
Determination of the Requirements Type



SAP recommends that you work with the planning strategies delivered in the standard system. However, if you want to change the texts of the planning strategies, you can do so via the requirements type.

By assigning a planning strategy to a particular material, the system determines the correct requirements type (and thus all the control parameters of the requirements class) when creating planned independent requirements or sales orders. Here, you must maintain the following objects and assignments:

- You must maintain the planning strategy (in Customizing for Demand Management). The planning strategy is defined either by a requirements type from Demand Management or by a requirements type from sales order management or by a logical combination of both requirements types. This determines, for example, how the consumption of planned independent requirements by customer requirements is carried out and whether the availability check according to the ATP logic is carried out.
- You must assign the planning strategy to a strategy group (in Customizing for Demand Management) so that a material can be planned with various planning strategies. You can maintain one main strategy and up to six alternative strategies.
- You must assign the strategy group to the material (in the material master record), so that the system can determine the correct requirements type automatically.
- You can also assign the planning strategy via the MRP group. You do this by assigning the strategy group in Customizing for Demand Management to the MRP group. In this case, the MRP group is assigned to the material in the material master record.



If you have entered a strategy group or an MRP group containing the appropriate strategies in the material master record, you then do not have to enter a requirements type in Demand

Determination of the Requirements Type

Management. The system determines the valid requirements type via the strategy group from the material master record and proposes this type automatically when creating independent requirements (or customer requirements). If the strategy group contains more than one planning strategy, the system proposes the requirements type of the main strategy. If necessary, you can overwrite this proposal using one of the requirements types from the alternative strategies.

Determining and Assigning the Planning Strategy

Determining and Assigning the Planning Strategy

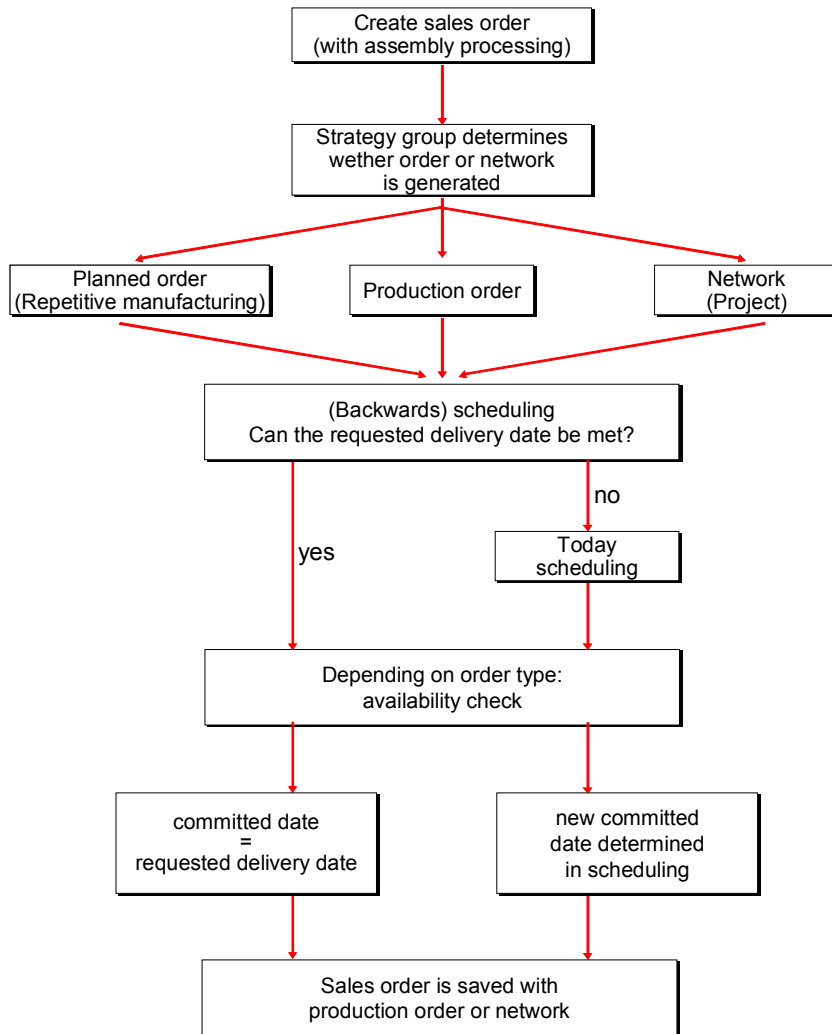
Assigning a Planning Strategy to a Material

When you assign a planning strategy to a particular material, the system determines the correct requirements type (and thus all the control parameters of the requirements class) when creating planned independent requirements or sales orders.

1. Maintain the **planning strategy** (in Customizing for Demand Management under *Planned Independent Requirements* → *Planning Strategy* → *Define strategy*). The planning strategy is defined either by a requirements type from Demand Management or by a requirements type from sales order management or by a combination of both requirements types that makes sense. This determines, for example, how the consumption of planned independent requirements by customer requirements is carried out and whether the availability check according to the ATP logic is carried out. See [Table of Planning Strategy Assignments \[Page 147\]](#) for more information on requirements types.
2. Assign the **planning strategy** to a **strategy group** (in Customizing for Demand Management under *Planned Independent Requirements* → *Planning Strategy* → *Define strategy group*) so that a variety of planning strategies can be used to plan a material. You can maintain one main strategy and up to six alternative strategies.
3. Assign the **strategy group** to the **material** (in the material master record on the MRP screen), so that the system can determine the correct requirements type automatically.

The following graph illustrates how the individual objects fit together:

Determining and Assigning the Planning Strategy



Consumption Strategies and Logic

Purpose

In the consumption process, the system compares planned independent requirement quantities and dates with actual customer requirements.

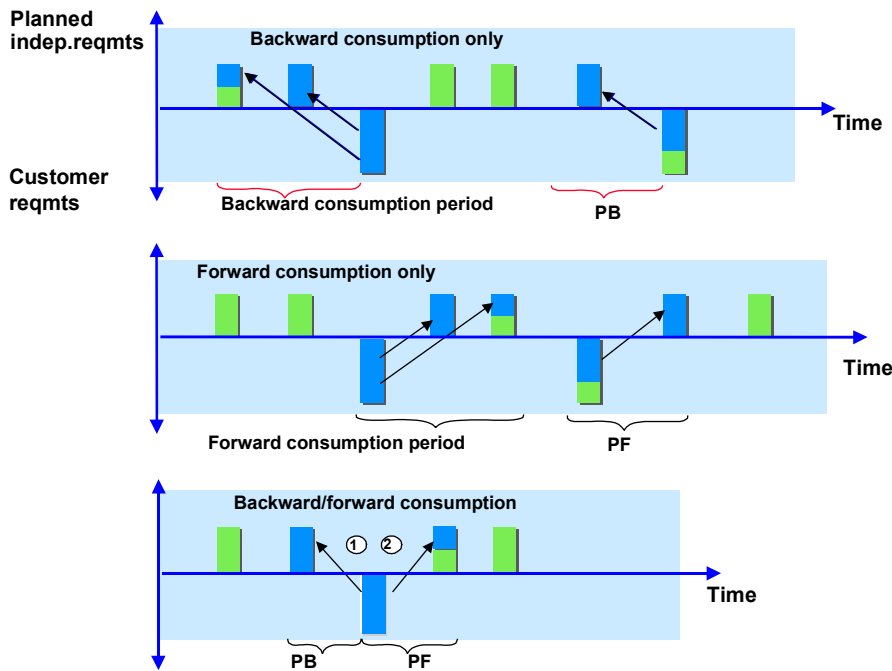
The consumption process is defined for every planning strategy in Customizing for Demand Management by the combination of a requirements type from Demand Management with a requirements type from sales order management.

This means that the requirements type entered when maintaining planned independent requirements is compared with the customer requirements type specified in Customizing.

Prerequisites

- You must maintain the consumption mode in the material master record (*MRP* screen) or in Customizing for Demand Management. The consumption mode determines whether consumption is to be carried out as backward or forward consumption, or whether both consumption types are allowed.
 - In backward consumption, the system looks for the planned independent requirement quantity that lies directly before the sales order.
 - In forward consumption, the system looks for the planned independent requirement quantity that lies directly after the sales order.
- You must maintain the consumption period in the material master record (*MRP* screen) or in Customizing for Demand Management. The consumption period (either forward or backward) is specified in workdays and is valid from the current date. Sales orders, material reservations, dependent requirements then consume the planned independent requirement quantities that lie within the consumption period and after (for forward consumption) or before (for backward consumption) the requirements date.

Process Flow



1. The customer requirement consumes the planned independent requirement quantity that lies either directly before it or directly after it.
2. If the planned independent requirement quantity that lies directly before the customer requirements does not cover the customer's requirement, then the system looks for the next closest planned independent requirements either in the future or the past.
3. During this process, the system refers to the consumption periods maintained in the material master or in Customizing for Demand Management (see above). The consumption periods determine the intervals (for backward or forward consumption) within which customer requirements consume planned independent requirements. Customer requirements which lie outside the consumption period are not consumed.



If no consumption periods have been maintained, you can only consume requirements which are planned on the same day.

The allocation of customer requirements to planned independent requirements is carried out dynamically. This means that if sales orders or planning is rescheduled, the allocation is deleted and redefined.

Cross-Plant Planning

Cross-Plant Planning

Purpose

Demand Management can also be used to plan across plants. For each material, there is a **planning plant** that procures and stores the materials independently of orders. There are also one or more **ordering plants** in which the materials are used for sales orders, production orders, or for other requirements.

Prerequisites

You must set up the material master as follows:

Planning Plant	Ordering Plant
Any strategy group	Special procurement type = 40
<i>Mixed MRP</i> indicator = 1	

Process Flow

The following table illustrates a typical process flow:

Planning Plant	Ordering Plant
8. Planned independent requirements are created in Demand Management and trigger procurement.	
9. Procurement takes place before sales order arrives. Materials are placed in stock.	
	10. Any order (sales order, production order, reservation) is created.
	11. A stock transport order is created (for example, by converting a transfer request which was created by the MRP run).
12. Delivery for the stock transport order.	
	13. Goods receipt for the stock transport order.
	14. Material is available for order.

Availability Check

Use

During sales order processing, the availability check enables you to tell the customer if the product can be delivered on time. You can control how the availability check is carried out by setting the *Availability check* field in the material master.

Integration

There are two availability check methods:

- Check against planned independent requirements
 - Used with, for example, strategy 50, 60, 52, 63, 74. (All other strategies use ATP check.)
 - Only planned independent requirements are taken into account
 - No MRP elements (for example, stock) are taken into account
 - No requirement to customize the checking rule
 - The field *Availability check* is only used to determine the requirements passing (daily or individual requirements)
- Available-to-Promise (ATP) check
 - Check is performed against stock and all other MRP elements (for example, stock, production orders, sales orders, requirements, schedule lines)
 - Option to check against a replenishment lead time (RLT).
 - Very accurate
 - Always performed when production orders are processed.

Activities

Transferring Requirements from Sales Orders

The following applies to both checking methods:

In the standard system, checking group **01** is set up so that daily requirements are passed on to production. This means that there is only one line visible in the stock/requirements list (as shown above) that contains the cumulated quantity for one day, rather than the individual sales orders. The sales order number does not display on the *Order* line in the stock requirements list.

If you want to see individual requirements, you can create a new checking group in Customizing for Sales and Distribution (choose *Basic Functions* → *Availability Check and Transfer of Requirements* → *Availability Check* → *Availability Check with ATP logic or against planning* → *Define checking group*) and a new checking rule that combines the new groups with **A**.

Set up the ATP Checking Rule for Sales Order Processing

The following applies only to the ATP checking method:

Availability Check

- You can define how the system checks availability of components in production orders in Customizing for Sales and Distribution. Choose *Basic Functions* → *Availability Check and Transfer of Requirements* → *Availability Check* → *Availability Check with ATP logic or against planning* → *Carry out control for availability check*.

AV (= Checking group for availability check)	Description	ChR (= Checking rule for availability check)	RLT
01	Daily requirements	A	'Blank' (= check with replenishment lead time)
02	Individual requirements	A	'X' (= check without replenishment lead time)

- The checking rule in the sales order is **A** in make-to-stock strategies and **AE** for make-to-order strategies. The checking rules for **01/AE** and **02/AE** are the same in the standard system.
- You can define your own checking rule for production orders in Customizing. In the standard system, the checking rule for production orders is **PP**.

Set up the ATP Checking Rule for Production Order Processing

The following applies only to the ATP checking method:

- Maintain the *Availability check* field on the MRP screen of the material master. In the IMG for Production, choose *Production Orders* → *Operations* → *Availability check* → *Define checking group*.
- Maintain the checking rule. In the IMG for Production, choose *Production Orders* → *Operations* → *Availability check* → *Define checking rule*. The checking rule is assigned to the order type and transaction (create/release). In Customizing, choose *Production Orders* → *Operations* → *Availability check* → *Define checking control*.
- Define the scope of the check. In the IMG for Production, choose *Production Orders* → *Operations* → *Availability check* → *Define scope of check*.
- Maintain the checking control. In the IMG, choose *Production* → *Production Orders* → *Operations* → *Availability check* → *Define checking control* to define a plant and production order type combination and when check availability can be performed, during order creation or during order release.

Reuse of Information in Demand Management

Use

Demand Management allows you to copy reference information from one source to another to save time. The topics in this section describe the procedures for reusing information.

Use of References for Creating the Demand Program

Use of References for Creating the Demand Program

Use

References are useful in the following cases:

- If planned independent requirements are to be copied from other planning departments such as Sales and Operations Planning
- If you can save time by using references, for example, copying planned independent requirements from other materials or using another planned independent requirements version of the same material
- If the planned independent requirement can be created using the original plan, that is, the first version of the planned independent requirements
- If the planned independent requirements quantity can be determined using the material forecast

Activities

You can create planned independent requirements directly in Demand Management in the item screen, or using references.



If you copy the planned results from Sales and Operations Planning, and a fiscal year variant is used as the planning period, or if you maintain planned independent requirements with reference to a fiscal year variant, you must maintain the fiscal year variant in the material master record (in the *Forecast requirements* section of the material master record).

This also applies to cases where the planning calendar is used. You must maintain the planning calendar in the *Scheduling* section of the material master record.

To create planned independent requirements using references, see [Creating Planned Independent Requirements with Reference \[Page 201\]](#).

Copying a Forecast

Procedure

1. Select *Material forecast* and choose *Continue*.
2. Define the reference and choose *Continue*.
3. You can change the reference in *Change reference values* by changing the following parameters and choosing *Continue*.
 - Planned quantity
 - Postpone
 - Percentage

Display references appears. You can check the reference quantity.
4. Select a reference, and choose *Choose*.

The reference is copied to the current material.
5. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also:

[Changing PIRs \[Page 198\]](#)

Copying the Total Forecast

Copying the Total Forecast

Procedure

1. To copy the forecast result for one or more plants and for a group of materials, choose *Demand Management*. Select *Planned indep.reqmts* → *Copy total forecast*.
The initial screen appears for copying forecast values.
2. Enter the following selection criteria:
 - Plant
 - MRP controller
 - Material number(s)
 - MRP area (if applicable)
3. If necessary, enter the period within which you want to copy the total forecast.
4. You can limit the copy by entering the following parameters:
 - Requirements plan number
 - Requirements type
 - Version
5. To activate the forecast result, select *Reqmt active*.
6. To record a history for the copy, select *History*.

Result

- The information from the forecast is used to create the planned independent requirements for materials for which no planned independent requirements are created.
- If the forecast is used as a reference for creating planned independent requirement quantities for materials, the system copies changes in the forecast values to the planned independent requirements.

See also

[Copying Forecast in Simulation Mode \[Page 163\]](#)

[Copying Data Without Monitoring Forecast Changes \[Page 169\]](#)

Copying a Forecast in Simulation Mode

Procedure

1. To copy the forecast in simulative mode, select *No database changes (simulation)*.
2. To check the result of the simulation, select *Create list of results*.

Result

The results list appears.

If there are errors when copying the forecast values, the system displays an error log.

Copying the Original Plan

Copying the Original Plan

The original plan is the first version of planned independent requirements. You can use the original plan of another material as a reference.

Procedure

1. Select *Original plan*.
2. Define the reference and choose *Continue*.
3. You can change the reference in *Change reference values* by changing the following parameters and choosing *Continue*.
 - Planned quantity
 - Postpone
 - Percentage

Display references appears. You can check the reference quantity.
4. Select a reference, and choose *Choose*.

The reference is copied to the current material.
5. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also:

[Changing PIRs \[Page 198\]](#)

Copying Versions (Collectively)

You can copy and assign new version numbers to create a new demand program or for long-term planning.

Procedure

1. To copy versions collectively, on the *Demand Management* screen, select *Environment* → *Copy version*.

The initial screen of the report for copying versions appears.

2. Enter the selection criteria.
3. Use *Version* to define the source version to be copied, and enter the version number of the target version.
4. To change the quantities of the schedule lines of the target version using arithmetic operations, enter the quantity by which the schedule line is to be changed in *Change quantity*, and the operator to be used.
5. To displace the schedule lines of the target version by months, enter the number of months in *Displace by ___ month(s)*.
6. Determine whether the target version is to be active or inactive.
7. Determine whether:
 - A history is to be recorded.
 - A results list is to be recorded. The results list displays all selected materials with warnings and error messages.
 - The report is to be run in simulation mode with no changes to the database.

Start the report.

Copying Data and Monitoring Reference Changes

Copying Data and Monitoring Reference Changes

Procedure

1. If you monitor the copy procedure and, if you want to select changes, select *Create selection list (online)*. The system displays a list of the materials that have changed references.
2. Determine if the reference is active or inactive and decide which reference changes to copy.
3. Select the material, and choose *Choose*.

The system displays the *Copy Data Changes* dialog box.

4. Select *Yes, selected*, and choose *Continue*.

The system displays the compare screen.

- In the column on the left of the screen, the system displays the changed schedule lines of the reference to be copied.
- In the column on the right of the screen, the system displays the schedule lines.

By choosing the period in the left column, you can copy the value of the schedule line to the right column of the screen.

You can check the selected materials. When a material is processed, it has the "processed" flag in the selection list.



Copying Data Without Monitoring Reference Changes

Procedure

To copy all the reference changes without checking the changes, select *Create list of results*.

Result

The system displays a list of the copied references.



If changed planning results from SOP are copied completely, the system overwrites planned independent requirements quantities.

Copying Data and Monitoring Forecast Changes

Copying Data and Monitoring Forecast Changes

Procedure

1. To copy data and check or reprocess the forecast changes in the forecast results, select *Create selection list (online)*.
2. If there are errors when copying the data, you can access an error log by choosing *Goto* → *Error log*. To display a description of the error, choose the error.

Result

The system displays a list of all materials for which the forecast was performed in the period specified.

Copying Data Without Monitoring Forecast Changes

Procedure

To copy all forecast values without checking or reprocessing the changes in the forecast results, select *Create list of results*.

Result

The system displays a list of the copied forecast materials.

If there are errors when copying the forecast values, the system displays an error log.

Copying Schedule Lines Between Versions

Copying Schedule Lines Between Versions

Procedure

1. On the left-hand side of the *Compare Versions* screen, select the schedule lines that you want to copy to the current version (displayed on the right-hand side of the screen).
2. Choose *Copy*.

All schedule lines selected are copied to the current version, that is, the dates and quantities of the schedule lines are created or, if the current version contains a schedule line for the same date, it is overwritten.

Save.

Copying Standard SOP Results for a Material

Procedure

1. Select *SOP results for material* in the dialog box and choose *Continue*.
2. Define the reference and choose *Continue*.
3. Define the transfer strategy and choose *Continue*.
4. You can change the reference in *Change reference values* by changing the following parameters and choosing *Continue*.
 - Planned quantity
 - Postpone
 - Percentage

Display references appears. You can check the reference quantity.
5. Select the product group member, and choose *Choose*.

The system copies the reference for the current material. You can check and change the quantities and dates.
6. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also:

[Changing PIRs \[Page 198\]](#).

Copying Standard SOP Results for a Product Group

Copying Standard SOP Results for a Product Group

Procedure

1. Select *SOP results for product group* in the dialog box and choose *Continue*.
2. Define the reference and choose *Continue*.
3. Define the transfer strategy and choose *Continue*.
4. Select the product group members, and choose *Continue*.
The reference quantities are copied to the item screen.
5. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also

[Changing PIRs \[Page 198\]](#)

Copying Simulative Dependent Requirements

Procedure

1. Select *Copy simulative requirements*.
2. Define the reference and choose *Continue*.
3. You can change the reference in *Change reference values* by changing the following parameters and choosing *Continue*.
 - Planned quantity
 - Postpone
 - Percentage

Display references appears. You can check the reference quantity.
4. Select a reference, and choose *Choose*.

The reference is copied to the current material.
5. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also:

[Changing PIRs \[Page 198\]](#)

Copying Reference Changes in Simulation Mode

Copying Reference Changes in Simulation Mode

Procedure

1. To copy the reference changes in simulative mode, select *No database changes (simulation)*.
2. To check the results of the simulation, select *Create list of results*.

Result

The results list contains the following:

- Total quantity of the copy procedure
- Quantity and date of the schedule lines
- Plant
- Requirements type
- Version

Reference type

Copying Flexible Planning

Procedure

1. Select *Flexible planning*.
2. Define the reference and choose *Continue*.
3. You can change the reference in *Change reference values* by changing the following parameters and choosing *Continue*.
 - Planned quantity
 - Postpone
 - Percentage

Display references appears. You can check the reference quantity.
4. Select a reference, and choose *Choose*.

The reference is copied to the current material.
5. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also:

[Changing PIRs \[Page 198\]](#)

Copying PIRs

Copying PIRs

Procedure

1. Select *Independent requirements*.
2. Define the reference and choose *Continue*.
3. You can change the reference in *Change reference values* by changing the following parameters and choosing *Continue*.
 - Planned quantity
 - Postpone
 - Percentage

Display references appears. You can check the reference quantity.
4. Select a reference, and choose *Choose*.

The reference is copied to the current material.
5. Select the item, and select *Schedule lines*.

Result

On the schedule lines screen, you can check and change the quantities and dates.

See also:

[Changing PIRs \[Page 198\]](#)

Copying Usage Probabilities from LIS

Procedure

On the schedule lines screen of Demand Management, you can assign information structures from Logistics Information System (LIS) to the planned independent requirements. These assignments are for reference only, that is, they record which data from LIS can be compared with the planned independent requirements. They do not change the planned independent requirements.

1. To copy data from LIS, select *Settings* → *Assign info.structure*.
The system displays the *Assign Info Structure* dialog box.
2. Enter the info structure of the combination value keys and the version of the info structure.
This assigns the info structure to the current version of the planned independent requirements.
3. Select *Conf. supporting pnt*.
The system displays the *Configuration: Maintaining Usage Probabilities* dialog box. Only the info structure for the combination value keys is relevant. The key figures contained in the info structure are displayed with reference to the combination value keys in the statistics column of the dialog box.
4. To copy the key figures to the usage probabilities, select the combination value keys for which the key figures are to be copied and select the statistics column from which the key figures are to be copied.
5. Choose *Copy*.

Result

- Fixed characteristic values are not overwritten in the same way they are not changed in the automatic correction.
- If a required quantity is maintained, the key figure is displayed as a quantity
- If a usage probability is maintained, the key figure is displayed a probability.

See also:

[Creating PIRs for Characteristics Planning \[Page 108\]](#)

Determining Planning Quantities Using the Material Forecast

Determining Planning Quantities Using the Material Forecast

Prerequisites

You can use the material forecast to determine planned independent requirement quantities. You must maintain the following data in the forecast screens in the material master record:

- Number of the required forecast values
- Forecast periodicity

Procedure

The forecast is based on the consumption values in the material master record. The system uses the periodicity of the forecast values and the number of forecast values to be calculated as recorded in the material master record.

1. To determine the planning quantities using the forecast, on the schedule lines screen, select *Edit* → *Execute forecast*.

The *Forecast Date* dialog box appears.

2. Select the forecast date. Depending on the periodicity, the system displays the current period and the subsequent period. Choose *Continue*.

The *Forecast: Model Selection* dialog box appears.

The forecast period is copied from the specification in the material master record, and cannot be changed.

3. Check and, if necessary, change this period by using historical data to determine the forecast values.
4. Select the forecast model, and select *Perform forecast*.

The system displays a dialog box. You can choose the procedure to be used for calculating the forecast values.

5. Select the procedure to be used for calculating the forecast values. Select *Perform forecast*.

The system calculates the forecast values. The system displays the *Forecast: Results* dialog box. Check and, if necessary, change the forecast values.

The following model parameters and criteria for determining the accuracy of the forecast are displayed in this dialog box:

- Basic value
 - Trend value
 - MAD (mean absolute deviation)
 - Error total
6. You can display the results of the forecast in a graphic, and change the graphic. Select *Interac.graphics*.

The system displays the interactive graphic. Change the graphic, if necessary.

Determining Planning Quantities Using the Material Forecast

7. To save the forecast, select *Copy*.

See also:

Extended Help for *Consumption-Based Planning (MM-CBP)* and *Managing Material Master Data (LO-MD-MM)*.

Reorganization of Planning Data

Reorganization of Planning Data

With the reorganization function, you can delete planned independent requirements for which there are no sales orders in the database. You can delete the planned independent requirements history.

A key date is required to carry out reorganization which is calculated as follows: the system checks whether a reorganizing interval is maintained in Customizing for the plant that you want to reorganize. If an interval is maintained for this plant, the system uses this information to calculate the key date. If no interval is maintained for this plant, the system checks whether intervals are maintained for any other plants, and selects the largest interval to calculate the key date. You can change the key date proposed in the initial screen for reorganization.

You can change the proposed key date when deleting the history. You can set a shorter interval for deleting histories than for deleting the requirements records.

Maintaining Histories

Procedure

1. Create the planned independent requirements as described in [Creating Planned Independent Requirements Without a Reference \[Page 202\]](#) or in [Creating Planned Independent Requirements with Reference \[Page 201\]](#).
2. Select *History* on the initial screen.

Result

When you select *History*, the system makes a record of changes to the demand program.

Changing Histories per Schedule Line

Changing Histories per Schedule Line

Procedure

1. Select the schedule line.
2. Select Goto → Sched. line history.

The change history appears displaying the changed quantities.

- In the header of the screen, the system displays information on the basic data of the selected schedule line.
- In the lower part of the screen, the system displays the requirements date, the old and the new quantity, the name of the person who made the changes, and the date of the change.

Changing Histories per PIR Item

Procedure

1. Select the item.
2. Select Goto → Item history.

The system displays the complete change history for the selected item.

In the header of the screen, the system displays information on the basic data of the selected schedule line.

Deleting the History

Deleting the History

Procedure

1. On the Demand Management screen, select *Environment* → *Reorg. planning* → *Delete history*.
The initial screen for adjusting requirements appears.
2. You can limit the scope of reorganization by setting parameters.
3. In the *Key date* field, the system displays the value calculated using the reorganization interval.
4. If you want a list with detailed information on the requirements adjustment, select *Create list*.
5. To use the reorganization function for testing, select *Test mode*.
6. Choose *Execute*.

If you select the *Create list* field, the system displays a list of the reorganized planned independent requirements.

Modification of Schedule Lines

Purpose

You can:

- Overwrite the schedule line quantity or the date of the schedule lines manually
- Change schedule lines automatically using calculations
- Delete schedule lines
- Displace the dates of the schedule lines.
- Change the quantities and dates for one schedule line or for several schedule lines.

Process Flow

In the schedule line tab page for maintaining the planned independent requirements, you can change existing schedule lines using the following arithmetic operations.

- Add entered quantity to the schedule lines
- Subtract the entered quantity from the schedule lines
- Multiply the schedule lines by the number entered
- Divide the schedule lines by the number entered
- Enter a percentage of the schedule lines
- Replace the schedule lines by the entered quantity
- Round the schedule lines

Postponing Dates in the Schedule Lines

Postponing Dates in the Schedule Lines

Procedure

Select a number of months by which the dates are to be displaced.

1. Select one or more schedule lines.
2. Select *Edit* → *Chge sched.line*.
The *Change Schedule Lines* dialog box appears.
3. To change the quantities, enter the quantity by which the schedule lines are to be changed, and select the arithmetic operation.
4. To displace the date, enter the appropriate number of months in the *Postpone by* ___ *month(s)* field.

Reorganizing Schedule Lines

Procedure

1. On the Demand Management screen, choose *Environment* → *Indep. reqmts: reorg.* → *Sched.lines: reorg.*

The initial screen for adjusting requirements appears.

2. You can limit the scope of reorganization using the following parameters:
3. In the *Key date* field, the system displays the value calculated using the reorganization interval.
4. If you want a list with detailed information on the requirements adjustment, select *Create list*.
5. To use the reorganization function for testing, select *Test mode*.
6. Choose *Execute*.

If you select the *Create list* field, the system displays a list of the reorganized planned independent requirements.

Display of Information in Demand Management

Display of Information in Demand Management

Use

You can change the way in which you view data in Demand Management. The topics in this section describe the procedures regarding how to display information.

Version Management

Use

This function allows you to:

- Create multiple versions of a planned independent requirement
- Create planned independent requirement quantities or dates for one material
- Label a planned independent requirements as a reference
- Create versions of planned independent requirements in simulative mode to see how each version affects the production and procurement plan.

Activities

If you want a planned independent requirement version to be included in the operative planning run, activate it. Inactive planned independent requirements versions are excluded from the operative planning run.

Comparing Versions

Comparing Versions

Procedure

You can compare versions entered for a material, and you can copy one or all schedule lines from the version you are using for comparison. You can use this function to copy the planned independent requirements or the schedule lines of other materials.

1. Select the version.
2. Select Edit → Compare reqs with → Reqmts version.
The dialog box *Compare With* appears.
3. Enter the material.
4. Enter the requirements plan number if the version that you want to use for comparison has a requirements plan number.
5. Enter the requirements type.
6. Enter the plant in which the version to be used for comparison is created.
7. Specify the version to be used for comparison:
 - To select one version, select *Selected version*, and enter the required version.
 - To select all active versions, select *All active versions*.
 - To select all active and inactive versions, select *All active/inactive versions*.
8. Choose *Continue*.

Result

The *Compare Versions* screen appears. On the left-hand side of the screen, the material or the version you selected in the dialog box is displayed. On the right-hand side of the screen, the material you selected on the entry screen is displayed.

Setting Periodicity for Versions

Procedure

1. To compare versions created using different periodicity, you can change the periodicity of both versions to a common periodicity using *Change period*.
If the same periodicity has been set for both versions, the system highlights the lines that contain different quantities, and displays the percentage of the deviation in a third column.
2. To set the periodicity for versions, select *Edit* *Change period*, and select the periodicity in which you want to compare the versions.

Result

The system highlights the periods in which the versions in comparison differ from each other. It also displays the percentage deviation between the quantity on the right and the quantity on the left in the *Dev %* column.

Display of Schedule Lines

Display of Schedule Lines

Use

In the planning table tab page and in the schedule lines tab page, the schedule lines created for the planned independent requirement items can be displayed as individual periods or as a total. The system can display every split of a planned quantity on a schedule line, or it can display the total quantity of a period on one schedule line. You can view the splits of this quantity by choosing the total. The schedule lines screen is clearer if you display totals, when the planned independent requirement items are split into daily quantities.

In the period totals display, the system uses the split used to create the planned independent requirements. The periodicity created in this first split is used in the schedule lines display. If you split these schedule lines into smaller periods, these schedule lines are highlighted but are still displayed according to the periodicity and the original quantity. If you choose one of these highlighted schedule lines, the system displays a dialog box listing the detailed schedule lines. You cannot change the schedule lines in this dialog box.



In the case of configurable materials, when you choose a highlighted schedule line, the system displays a dialog box of the configuration for maintaining usage probabilities. For more information see [Characteristics Planning \[Page 108\]](#). To view the period splits, select the highlighted schedule line, and choose *Period split*.

Integration

In the requirements parameters or in Customizing, you can set the schedule lines to be displayed as a totals value or you can set all the period splits to be displayed online:

- **User-specific setting in the requirements parameters:**

Select *Reqmts parameters* in the initial screen of Demand Management. In the requirements parameter screen, set whether you want to see the schedule lines as period totals or as period splits.

- **For each Demand Management transaction in Customizing:**

In Customizing for Demand Management, set per transaction whether the schedule lines are to be displayed as period totals or as period splits.



The settings made in Customizing can be overruled by the user-specific settings in the requirements parameters.

Creating Texts for Items and Schedule Lines

You can document planned independent requirement items and schedule lines.

- To create text for an item, select the planned independent requirement item on the item screen, and select *Goto* → *Item text*.

To create a text for a schedule line, select the schedule line on the schedule line screen, and select *Goto* → *Schedule line text*.

Displaying Total Requirements

Procedure

In *Display Total Requirements*, you can check and, if necessary, change the planning figures. With this evaluation function you can list all the planned independent requirements that exist for a material or a product group. From this total requirements display, you can access detailed information, or you can enter change mode.

1. On the Demand Management, select *Evaluations* → *Display total reqmts.*
The initial screen for displaying total requirements appears.
2. Enter the material number.
3. Enter the requirements plan number if the planned independent requirements you want to display are created with a requirements plan number. To select all requirements plans, leave this field blank.
4. Specify the requirements type.
To select all requirements types, leave this field blank.
5. Enter the plant of the planned independent requirements.
6. Enter the allocation indicator.
7. To display only the history, select *History*.
8. You can limit the period in the display by entering the *Requirements date*, and the *Requirements date to*.
9. Choose *Continue*.

Result

The total requirements display for planned independent requirements appears.

Depending on your settings in the initial screen, the system displays a list of available planned independent requirements and quantities, and a list of the customer requirements that are allocated, and that cannot be allocated.

Displaying Values

Displaying Values

Procedure

1. To view the value of the planned independent requirements in relation to the price in the material master record, select the item and choose *Display values*.

The system displays:

- The basic data of the selected material and the total value of the planned independent requirement item.
 - The period value for each schedule line, which is calculated using the price maintained for the material in the accounting screen of the material master which is multiplied by the quantity in the schedule line.
2. To display the cumulated values for the periods, select *Edit* → *Change period*, and select the periodicity.

The system displays:

- The values for the periodicity selected

The schedule line in the schedule lines tab page in a column for each schedule line

EXCEL Interface to Demand Management

Use

Microsoft EXCEL[®] is a spreadsheet for Microsoft Windows[®] and Apple Macintosh[®]. Microsoft EXCEL[®] contains functions for analyzing data, for producing lists, for making calculations and for preparing data in graphic form.

Integration

If you work on a PC that is IBM compatible and if Microsoft Excel[®] and the SAP XXL-List Viewer[®] are installed, you can transfer data from the Demand Program to EXCEL on your PC.

The data transformation is used for the graphic display of the Demand Program because graphic display options are available in EXCEL.

Data in EXCEL cannot be transferred to the R/3 System.



Windows is a registered trademark of the Microsoft Corporation
EXCEL is a registered trademark of the Microsoft Corporation.
Macintosh is a registered trademark of the Apple Corporation.
XXL-List Viewer is a registered trademark of the SAP AG.

See also:

[Accessing the EXCEL Interface \[Page 196\]](#).

Accessing the EXCEL Interface

Accessing the EXCEL Interface

Procedure

The EXCEL interface is called using the XXL List Viewer[®]. The XXL List Viewer (EXTended EXcel) is a tool for displaying and manipulating list objects from R/3 applications. It contains macros that prepare Demand Management data for EXCEL layout.

1. To access the Excel interface, on the *Demand Management* screen, select *Evaluations* → *XXL list viewer*.

The initial screen for accessing the *PP Demand Management / XXL List Viewer* appears.

2. Enter the material number and the requirements plan number, if necessary.
3. You can enter data to control your selection:
4. Choose *Execute*.

The *Export list object to XXL list viewer* dialog box appears.

5. Choose *Continue*.

The *Save List Object* dialog box appears.

6. Enter a name in the *Name of list object* field for saving data.

To save the evaluation data in the inbox of the SAPoffice, enter a name in the *Title for SAPoffice* field.

7. Choose *Continue*.

The link to EXCEL is created.

The system displays the Demand Management data in EXCEL prepared by the XXL list viewer.

8. Save your data.
9. To quit EXCEL, select *Report* → *Cancel*, or *Report* → *Return to R/3*.

See also:

SAP XXL List viewer document, *BC - SAP XXL*.

Planned Independent Requirements (PIRs)

Definition

Planned independent requirements are used to perform Demand Management functions. A planned independent requirement contains one planned quantity and one date, or a number of planned independent requirements schedule lines, that is, one planned quantity split over time according to dates.

Integration

Create planned independent requirements as follows:

- Manually by entering quantities and dates
- Automatically by copying the material forecast
- Automatically by copying the results of Sales and Operations Planning
- Automatically by copying the original plan
- Automatically by copying the planned independent requirements of another material, or by copying another planned independent requirements version of the same material



You must maintain the fiscal year variant in the *Forecast requirements* section of the material master record if either:

- You copy the planned results from Sales and Operations Planning, and you use a fiscal year variant as the planning period.
- You maintain planned independent requirements with reference to a fiscal year variant.

Changing PIRs

Changing PIRs

Procedure

1. On the Demand Management screen, select *Indep.reqmts* → *Change*.
The initial screen for maintaining independent requirements appears.
2. Enter the material number of the material, the name of the product group, or the requirements plan.
3. Enter the plant of the planned independent requirements to be changed.
4. Enter the requirements type.
If you want to select all requirements types, leave this field blank.
5. Select the versions you want to include.
6. Choose *Continue*.
If the planned independent requirements are created using a reference, the system displays a dialog box.
7. You can accept the changes with or without a manual check. The following options are available:
 - You can copy all changes in the reference.
 - You can copy some of the changes. For this selection the system displays the new reference values and the current values. Select the changes you want to copy to the current independent requirements.
 - You do not have to copy the changed quantities.
If the selected planned independent requirement is not created using a reference, or if no changes are made to the reference, the system displays the schedule lines screen of the planned independent requirements.
8. On the schedule lines screen, you have the following options for changing planned independent requirements:
 - [Splitting the Planned Quantity when Changing PIRs \[Page 209\]](#)
 - [Modification of Schedule Lines \[Page 185\]](#)
 - [Determining Planning Quantities Using the Material Forecast \[Page 178\]](#)
9. Save your changes.

Maintaining Requirements Parameters

To simplify maintenance of the demand program, you can preset requirements parameters for the *Create indep.reqmts*, *Change indep.reqmts* and *Display indep.reqmts* functions, and for the evaluation of Demand Management.



Define the requirements parameters for the history in the same way for all functions.

Procedure

1. To set the requirements parameters, on the initial screen of planned independent requirements, select *Settings* → *Reqmts parameters*.
2. Define the requirements parameters and choose *Continue*.

Result

The system displays a message indicating that the requirements parameters are saved.



The active indicator field is used to specify which planned independent requirements are used for material requirements planning.

If you want to maintain a number of versions of planned independent requirements, but do not want to include all versions in the operative planning run, you can set some versions to active and others to inactive.

You set the active indicator for each planned independent requirements item or version on the item screen.

Adjusting Requirements

Adjusting Requirements

Definition

You use the period of adjustment to define a period in which only customer requirements are included in the planning run. No order proposals are created in the planning run for planned independent requirements that are in the period of adjustment, and for which no confirmed receipts or order proposals are planned.

Define the period of adjustment in the MRP group (consumption mode function) in Customizing for MRP. Assign the MRP group to the material in the material master record.

Procedure

1. On the Demand Management screen, select *Environment* → *Indep. reqmts: reorg.* → *Adjust requirements*.

The initial screen for adjusting requirements appears.

2. You can limit the scope of reorganization using the following parameters:
3. In the *Key date* field, the system displays the value calculated from the reorganization interval.
4. You can determine whether or not a history is recorded for the requirements adjustment. To record a history, select *Record history*.
5. To delete the inactive version, select *Delete inactive version before the key date*.
6. If you want a list with detailed information on the requirements adjustment, select *Create list*.
7. To use the reorganization function for testing, select *Test mode*.
8. Choose *Execute*.

If you select the *Create list* field, the system displays a list of the reorganized planned independent requirements.

Creating PIRs with Reference

Prerequisites

You must have performed planning procedures and have results to use as reference. You can choose from the following reference types:

- Sales plan of a material
- Sales plan of a product group
- Production plan of a material
- Production plan of a product group
- Results of flexible planning from SOP
- Simulative dependent requirements for characteristics planning
- Material forecasts
- Planned independent requirements of other materials
- Planned independent requirements of the same material
- The original plan of the same material

Procedure

1. To create planned independent requirements using a reference, on the *Demand Management* screen, select *Planned indep.reqmts* → *Create*.
The screen for creating planned independent requirements appears.
2. Enter the material number, the name of the product group or the requirements plan.
3. Enter the plant and / or the material (see [Material Requirements Planning \[Ext.\]](#)).
4. Enter the version.
5. Choose *Reference*.
The *Copy Reference* dialog box appears.
6. Select a reference type.
7. Continue with the next steps for copying the reference types are described in the following sections:

[Copying Standard SOP Results for Product Group \[Page 172\]](#)

[Copying Standard SOP Results for Material \[Page 171\]](#)

[Copying the Forecast \[Page 161\]](#)

[Copying Flexible Planning \[Page 175\]](#)

[Copying Simulative Dependent Requirements \[Page 173\]](#)

[Copying Planned Independent Requirements \[Page 176\]](#)

[Copying the Original Plan \[Page 164\]](#)

Creating PIRs Without Reference

Creating PIRs Without Reference

Procedure

1. To create planned independent requirements without a reference, choose *Logistics* → *Production* → *Master Planning* → *Demand Management* → *Planned indep.reqmts* → *Create*.

The initial screen for maintaining planned independent requirements appears.

2. Enter the material number, the name of the product group, or the requirements plan.
3. Enter the plant and / or the material (see [Material Requirements Planning \[Ext.\]](#)).
4. Enter the version and choose *Continue*.

The system creates the planned independent requirements with this version number.

The screen that allows you to maintain planned independent requirements appears.

See [Maintaining Requirements Parameters \[Page 199\]](#).

5. Check and change the parameters, if necessary.
6. Check and change the period indicator, if necessary.
7. Enter the requirements date and the planned quantity of the planned independent requirements.
8. Use the following table to proceed.

If you want to...	Then...
Split the total planned independent requirement quantity into periods (in the planning table or schedule line tab page)	See Splitting PIRs (Periodic Disaggregation) [Page 207]
Use the interactive forecast to determine the planning quantities	See Determining Planning Quantities Using the Material Forecast [Page 178]
Assign production versions to the schedule lines	Select <i>Settings</i> → <i>Production version</i>
Assign BOM explosion numbers	Select <i>Settings</i> → <i>BOM explosion number</i>
Indicate the planned independent requirements are to be consumed and not planned in the net requirements calculation	Select <i>W/o MRP</i> . Sales order or customer requirements can consume the planned independent requirements. However, the requirements quantities do not cause stocking of the components. This procedure is useful for characteristics planning if the planned independent requirements are used to stock at assembly level.
Work with a configurable material for which usage probabilities are maintained	See Characteristics Planning [Page 108]

Automatic Req'ts Split when Copying References

Use

When copying planned independent requirements using a reference (for example, the forecast, or SOP), you can specify that the total quantity is to be distributed automatically according to a predefined period split.

You can use a distribution function to split the requirements according to a non-linear strategy, or you can split the requirements quantities evenly over the period split (without the distribution function).

Prerequisites

You define this period split per reference type in Customizing for Demand Management (*Planned Independent Requirements -> Automatic Split -> Define period split for automatic split*). If you maintain a split for a reference type in Customizing, the system creates schedule lines using this period split each time an independent requirement is created using a reference.

The system can only split planned independent requirements created in monthly, weekly, or posting periods. The periods for which you want to split the planned independent requirements must be in the same period split. If you use different periods (for example, months and weeks), this can lead to incorrect results.

In Customizing, you maintain the period split for the automatic split of reference requirement quantities as follows:

- Irrespective of the period split used to create the reference requirements, you define two intervals for the split. The first interval determines the number of weeks to be split into days. The second interval determines the number of months to be split into weeks.
- If you use the distribution function, you must specify the percentage of the quantities to produce within a percentage of the production time in Customizing for Demand Management (*Automatic Split -> Distribution Function for Automatic Split -> Define distribution function*).

Features

The system splits the reference independent requirements as follows:

- If a reference requirement is in months, the system first splits the number of weeks defined in the first column into daily quantities. Then the number of months entered in the second column are split into weekly quantities



If one month contains five weeks, and if the period split is set as follows: week one, split into daily quantities, week two, three and four, split into weekly quantities, then the system displays the requirements of the fifth week as a weekly quantity. The total quantity of the month is divided by five weeks.

- If a reference requirement - to be copied using the automatic splitting procedures - is in weeks, then the first column is read to split the number of weeks entered into daily requirements. The second column is ignored.

Example of Splitting Requirements Using the Distribution Function

Automatic Req'ts Split when Copying References

Period	Month
Requirements quantity	100 pieces
No. of weeks	5

You maintain a distribution function which allocates 10 pieces to each of the first three weeks, and assigns 20 pieces to week 4, and 50 pieces to week 5.

Example of Splitting Requirements Without the Distribution Function

Period	Month
Requirements quantity	100 pieces
No. of weeks	5

Each week is allocated a requirements quantity of 20 pieces.



Creating PIRs for the MRP Area

Prerequisites

- Define MRP area in Customizing for material planning
- Assign the material to appropriate MRP area in the material master
- Maintain parameters in the material master; these parameters apply both to the MRP area and to the entire plant



For detailed information about setting up the MRP area in the material master, see

[MRP Area \[Ext.\]](#)

[Planning with MRP Area \[Ext.\]](#)

[Creating MRP Area Segments in the Material Master \[Ext.\]](#)

Procedure

The procedure for creating PIRs for MRP areas is exactly the same as creating PIRs for a plant, with the following exception: When you create PIRs for an MRP area, you must enter the identifying number of the MRP area instead of the plant number.

See

[Creating PIRs with Reference \[Page 201\]](#)

[Creating PIRs Without Reference \[Page 202\]](#)

Additional Information

- You can delete PIRs from an MRP area by deleting the MRP area number from the *Creating Planned Independent Requirements* screen and recompiling.
- When you define the planning strategies and parameters in the material master, these parameters apply to the whole plant, including all the MRP areas within the plant: You cannot maintain the MRP areas separately.
- The integration of the MRP area and the assignment of the MRP area in the sales order is supported only by a user exit in the sales and distribution user exit pool.
- Sales orders with MRP areas are created irrespective of the availability check control group in the material master.
- Customer order processing of production sales orders with the item category (account assignment *Step E Single*) is only maintained in the MRP area of the plant.
- In Customizing and in the MRP area user exit, make sure that when transferring individual sales orders, only requirements types KE, KEK, KEKS, KET, KELV, KEV, KEVV, VSEF, and VSE are generated.
- The following requirements types are valid for the MRP area: KE, KEK, KEKS, KET, KELV, KEV, KEVV, VSEF, and VSE.
- You cannot plan with preliminary planning materials in the MRP area.

Creating PIRs for the MRP Area

- There is no planning strategy for the material segment of the MRP area.
- The planning strategy for the material master segment of the plant is assigned to the material segment of the MRP area.
- The consumption mode and the periods of adjustment are derived from the plant in the MRP area of the material master.
- Only consumption customer requirements with planned independent requirements are allowed: VSF requirements with KSV and VSFB with KSV.

Splitting PIRs (Periodic Disaggregation)

Purpose

In the initial stages of planning the demand program, you enter large requirement quantities (for example, annual or monthly quantities from the material forecast or from SOP) which you refine to a detailed period split. You can split these initial quantities manually or automatically. In this process, you can use periods from the Gregorian calendar, or periods of your choice using the PPC planning calendar.

You can create planned independent requirements as one quantity and split them over a number of periods. You can choose between the following periods:

- Daily
- Weekly
- Monthly
- For each accounting period
- Planning calendar period (only possible on schedule line screen)

Process Flow

In the initial stages of planning the demand program, you enter large requirement quantities (for example, annual or monthly quantities from the material forecast or from SOP) which you refine to a detailed period split. You can split these initial quantities manually or automatically. In this process, you can use periods from the Gregorian calendar, or periods of your choice using the PPC planning calendar.



You can select the splitting periods so that they are the same length or shorter than the period indicators of the requirements date. If you enter a weekly period, you can split the planned quantity into the weeks of the period or into the days of the period.

See also:

[Splitting the Planned Quantity when Creating PIRs \[Page 208\]](#)

[Splitting the Planned Quantity when Changing PIRs \[Page 209\]](#)

Splitting the Planned Quantity when Creating PIRs

Splitting the Planned Quantity when Creating PIRs

Procedure

1. Select the planned independent requirement item, and choose *Split per.online*.
The *Period for Splitting* dialog box appears.
2. Enter the period indicator, and the start and the end of the requirements period.
3. Enter the quantity to be split in the *Planned quantity* field.
4. In the *Splt* field, enter the period indicator for the split.
5. If you want to round up or down the schedule line quantity, enter the rounding value, and choose *Continue*.
6. Select the item, and choose the *Schedule lines* tab title.

Splitting the Planned Quantity when Changing PIRs

Procedure

1. From the schedule line tab page, select *Split per.online*.
The *Period for Splitting* dialog box appears.
2. Enter the period indicator, and the start and the end of the requirements period.
3. In the *Spit* field, enter the period indicator for the split.
4. If you want to round up or down the schedule line quantity, enter the rounding value and choose *Continue*.

Result

Schedule lines are created in the selected period or schedule lines are overwritten with the new quantities.

Staggering the Requirements Split

Staggering the Requirements Split

Purpose

This process allows you to split planned independent requirements into smaller, staggered periods. The system can perform this split in intervals, for all or selected materials.

You can record a history and a results list for the report. You can also run the report in simulation mode causing no changes to the database.

Prerequisites

You must maintain a period split for the selection criteria in Customizing for Demand Management. (*Choose Planned Independent Requirements* → *Automatic Split* → *Define period split for automatic split.*)

Process Flow

1. On the Demand Management screen, select *Environment* → *Staggered split*.
The system displays the initial screen of the report.
2. Enter the selection criteria.
3. Enter the period split.
4. Determine whether:
 - A history is to be recorded.
 - A results list is to be created.
 - The report is to be run in simulation mode with no database changes.
5. Start the report.

Result

The results list displays all selected materials that have warnings and error messages.

Customer Requirements

You can create customer requirements in Demand Management.

Customer requirements represent the sales orders in the system. A sales order is a contractual agreement between a sales organization and a sold-to party. A sales order contains information on the delivery of a quantity of materials (or service) for a certain date.

Availability Check for Customer Requirements

Availability Check for Customer Requirements

Process Flow

An availability check is automatically run when saving customer requirements for all planning strategies. If the customer requirements cannot be delivered completely or partially, the *Customer requirements: Availability Control* screen appears.

One-time delivery on the requested delivery date

The system checks whether the requested delivery date can be met. If stock of a material is available to make a delivery on the requested delivery date, the stock quantity is confirmed. If there is no stock, the confirmed quantity zero is displayed.

To copy this data into the sales document, select *Edit* → *One-time delivery*.

Complete delivery

The system checks whether there is sufficient stock for full delivery at a later date.

- If there is sufficient stock at later date for the required quantity in the sales document, the system proposes the date.
- If the system determines that complete delivery cannot be made at a later date, no date is proposed.

If the availability check is run taking the replenishment lead time into account, the date proposed is the end date of the replenishment lead time. If the system runs the availability check without taking the replenishment lead time into account, the system uses the stock and the planned inward movement of stock in the calculation.

To copy this data to the sales document, select *Edit* → *Complete*.

Delivery proposal

The system checks whether partial deliveries can be made, and on which dates they can be made. Partial deliveries are displayed for different dates. These dates are based on the planned inward and outward movements of stock. During an availability check which takes replenishment lead time into account, the end date of the replenishment lead time is displayed if no partial deliveries can be made before the end of the replenishment lead time due to insufficient stock quantities. During an availability check, which does not take replenishment lead time into account, the system displays the dates on which partial deliveries can be made with the available stock.

To copy this proposal to the sales document, select *Edit* → *Delivery proposal*.

When you select one of the proposals, the system displays the scheduling screen where the dates and quantities are copied.



The dates displayed in the *Complete delivery* and *Delivery proposal* sections are determined by forward scheduling from the material availability date. They represent the actual delivery dates.

Creating Customer Requirements

Procedure

1. To create customer requirements, on the *Demand Management* screen, select *Customer reqmts* → *Create*.

The initial screen for maintaining customer requirements appears.

2. Enter the required data and choose *Continue*.

The item screen for maintaining customer requirements appears. The system displays the values you entered on the initial screen for maintaining customer requirements. In the item screen, you can enter a number of customer requirements for one material or more materials.

3. Enter the material for which you want to enter customer requirements.

The requirements type is copied from the value on the initial screen, which you can change the requirements type.

4. Enter the order quantity.

The delivery date field displays the value from the initial screen, which you can change.

5. If you want to choose another plant for the customer requirements, enter the plant in the *Plant* field.

6. You can allocate a BOM explosion number to the customer requirements to ensure that the BOM is exploded on the same date.

7. You can enter schedule lines for the customer requirements. Select the customer requirements, and choose *Schedule lines*.

The scheduling screen appears.

8. You can enter text for the item. Select the item, and choose *Texts*.

The screen for entering texts appears.

9. Save your entries.

The customer requirements are stored as a sales document in the system. The system displays the document number.

Changing Customer Requirements

Changing Customer Requirements

Procedure

It may be necessary to change the document of customer requirements manually. For example, if the quantity to be delivered or the scheduled delivery date is changed.

1. To change customer requirements, on the *Demand Management* screen, select *Customer reqmts* → *Change*.

The initial screen for changing customer requirements appears.

2. The number of the sales order you last entered is in the *Requirements plan* field.

You have the following options:

- If this is the correct requirements plan number, choose `ENTER`.
- You can change the requirements plan number, and choose `ENTER`.
- You can search for the requirements plan number, select `Customer requirements list`.

The selection screen for the customer requirements list appears.

Enter the selection criteria:

3. Choose *Continue*.

The system displays a list of customer requirements numbers that fit your selection criteria.

4. Choose the appropriate number, and choose *Choose*.

The item screen for changing customer requirements appears from which you can edit the customer requirements.