

# Warehouse Order Policies

SYSPRO 8

Reference Guide

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# Warehouse Order Policies

## Exploring

### Where it fits in?

An order policy refers to a set of procedures that a business follows to establish when to replenish stock (e.g. how much to order and the size of the individual orders).

Within SYSPRO, order policies refer to the rules that SYSPRO applies when calculating suggested replenishment orders for purchased or manufactured stock items. The rules let you apply the order policies that your company has formulated.

When businesses formulate their order policies, they weigh up a number of factors including:

- Cost factors, such as the cost of setting up a production run or the cost of ordering stock from a supplier versus the cost of storing the stock.
- Logistical factors such as storage space, pack sizes and lead times.

Several different order policies have been created to manage different replenishment models used in warehouses.

Normally MRP only allows replenishment up to the minimum quantity, but the O - Cover shortages less than min overages up to max order policy for example, allows the warehouse to order up to maximum allowed when stockpiling for an upcoming event.

## Navigation

The programs related to this feature are accessed from the **Program List** of the SYSPRO menu:

- *Program List > Requirements Planning*

# Terminology

## Order policies

Order policies are standardized instructions that regulate when material is purchased for the replenishment of stock (e.g. when stock falls below a minimum inventory level).

In SYSPRO, order policies are used by the **Requirements Calculation** program to suggest purchase requisitions, jobs or stock transfers. They are also used by the **MPS Review** and **MRP Master Production Schedule** programs when suggesting build schedules for master production schedule (MPS) items.

The order policy options are only enabled if **Q - Apply warehouse order policy** is selected against the **Batching rule** field for the stock item (**Stock Code Maintenance**).

### C - Cover shortages

This order policy covers shortages irrespective of any other settings specified for the warehouse like minimum quantity, etc.

#### FOR EXAMPLE:

If the available is 7, the demand 40 and the minimum 20, then MRP will suggest supply of 33. This is the 33 required to meeting the demand ( $7 - 40 = -33$ ).

The 20 to meet the minimum is ignored.



The 33 will be determined by the other options selected like pan size, multiples of pan, economic batch quantity (EBQ), etc.

### I - Cover shortages if less than min

If the quantity available minus the demand is less than the minimum level, then MRP will recommend supply to meet demand *and* to top up to the minimum level.

#### FOR EXAMPLE:

If available is 7, demand is 40 and minimum is 20, then the suggested supply will cover the shortage of 40, less the quantity on hand ( $7 - 40 = -33$ ). This is the shortfall that will be added by the system.

As the warehouse minimum is 35, a further order for 35 will be produced to get to the warehouse minimum.

The minimum warehouse quantity should be the minimum stock level being retained in the warehouse. If the available drops below the minimum stock level, suggestions will be raised to achieve the minimum stock level. If demand is raised causing the available quantity to fall below the minimum stock level, suggestions will be raised to satisfy the demand without compromising the minimum stock level.

This ignores the **FIXED TIME PERIOD (DAYS)** option defined in the **Stock Code Maintenance** program.

This rule can be used with the **Inventory Optimization** module. Dynamic safety stock levels can be applied, i.e. minimum stock levels per period, without the need for a maximum stock level. The rule orders up to the minimum regardless of whether the min/max levels are defined against the warehouse or against the **Inventory Optimization** module.

## M - Order to max if less than min

If demand causes available to be less than the minimum, then MRP will recommend supply up to the maximum.

This ignores the **FIXED TIME PERIOD (DAYS)** option defined in the **Stock Code Maintenance** program.

When using the **Inventory Optimization** module, the goal of this policy is to suggest supply that will satisfy the target service level defined against the IO policy defined in the **IO Policies** program.

## O - Cover shortages less than min overages up to max

If the business needs to increase stock in preparation for an event, this order policy will allow them to build stock to the maximum, irrespective of how much stock there is in the warehouse. The stock level may go slightly over the maximum quantity, depending upon batch size, but will never go below.

This caters for raising a suggestion when the minimum stock level in the warehouse is greater than the demand. Further supplies can be raised outside of MRP until the maximum is reached, at which time a *cancel* action is raised (i.e. when the supply quantity exceeds the warehouse maximum for that stock code). This could be used where demand is seasonal and supply can't match demand until a later stage, resulting in an increase in the stock holding level until the maximum has been reached.

This policy was developed to allow building stock for an event like a promotion and ignores all quantities except maximum quantity and batch size.

### FOR EXAMPLE:

If the warehouse minimum is 100 and the warehouse maximum is defined as 200, the policy will keep 100 in stock using MRP suggestions while taking all demand into account.

Supply created in the form of purchase orders or internal jobs will be kept to a maximum of 200 while considering all demands, stock on hand, etc. The purchase orders or internal jobs in excess of the maximum will be canceled by MRP.

Considerations:

- This feature is not applied to ECC depletion.
- This option applies to sites that are not licensed for the **Inventory Optimization** modules, but which are using warehouse order policies in MRP.

- This rule can only be used if the **SCHEDULE JOBS AND PURCHASE ORDERS** setup option is enabled (*Setup Options > Configuration > Manufacturing > Requirements Planning*) and when running the **Requirements Calculation** in legacy mode.

## P - Suppress MRP ordering

Demand generated for this item will not result in any suggested purchase orders.

## S - Order to max if shortage

This ignores the minimum. The order point is reached when the quantity available is insufficient for the demand.

This ignores the **FIXED TIME PERIOD (DAYS)** option defined in the **Stock Code Maintenance** program.

## Batching/Buying rules

Although a buying rule is typically applied to bought-out items and a batching rule is typically applied to made-in items, these terms are interchangeable within SYSPRO's Requirements Planning system - they indicate how you want to address quantity shortages encountered for a stock item.

The rule defined against each stock item is used to modify the actual shortage quantity in order to calculate an order quantity.

Batching rules are applied to MPS items when producing the MRP Master Production Schedule (unless you are including Build schedules in the requirements calculation) and to non-MPS items when running the **Requirements Calculation** program.

### A - Lot for lot

The order quantity is the shortage quantity.

All sub jobs are automatically created as lot for lot.

You would typically select this batching rule when implementing MRP (**Requirements Planning**) in SYSPRO for the first time. The rule simply generates planned supply (jobs, purchase order requisitions and purchase orders) for the actual net shortage in demand for each period.

Once you have familiarized yourself with SYSPRO's **Requirements Planning** module, you can implement the other batching rules as required.

### B - Multiples of EBQ (economic batch quantity)

To calculate the order quantity, the shortage quantity is rounded up to the next multiple of the economic batch quantity.

#### FOR EXAMPLE:

If the **ECONOMIC BATCH QUANTITY** is 10 and the shortage is 32, then the order quantity will be 40.  
 $4 \times \text{EBQ} (10) = 40.$

The system will always exceed and never short manufacture/buy.

### *C - Fixed time period*

When a shortage is encountered, the order quantity is calculated by adding all the shortages in the fixed time period ahead (i.e. a consolidation of all orders in the chosen time period into a single order quantity).

#### **FOR EXAMPLE:**

If the shortage is 32 today and 14 tomorrow, and the fixed time period is 1 day (1 future working day) then the order quantity will be 46 (32 + 14).

### *D - Order to maximum if shortage*

When a shortage is encountered, the order quantity is calculated to increase the stock holding up to the maximum quantity defined against the warehouse.

#### **FOR EXAMPLE:**

If the shortage is 32 and the maximum quantity is 100, then the order quantity will be 132 (32 + 100). This is because the shortage of 32 must be filled, plus 100 are required to bring the stock holding up to its maximum of 100.

### *E - Order to max if less than min*

As soon as the result field falls below the minimum quantity (during netting-off) an order quantity is calculated to order enough to increase the quantity available up to the maximum quantity.

#### **FOR EXAMPLE:**

If the minimum quantity is 50 and the maximum quantity is 200 and the result field is 12, then the order quantity will be 188 (200 - 12).

When you select this option, the **MPS Review** and **MRP Master Production Schedule** programs use the minimum and maximum quantities defined against the warehouse to calculate the suggestions made. Safety stock is not taken into account.

### *F - Multiples of pan*

This rule is identical to rule B, except that the pan quantity is used instead of the economic batch quantity.

To calculate the order quantity, the shortage quantity is rounded up to the next multiple of the pan size.

#### **FOR EXAMPLE:**

If the **PAN SIZE** is 10 and the shortage is 32, then the order quantity will be 40.

### *G - Multiple EBQ lots*

If a shortage occurs, then multiple orders are created to satisfy the shortage, each the size of the **ECONOMIC BATCH QUANTITY**.

**FOR EXAMPLE:**

If the **ECONOMIC BATCH QUANTITY** is 10 and the shortage is 32, then 4 orders (each having an order quantity of 10) are suggested.

### *H - Multiple pan lots*

This rule is identical to rule G, except that the pan quantity is used instead of the economic batch quantity.

If a shortage occurs, then multiple orders are created to satisfy the shortage, each the size of the pan.

**FOR EXAMPLE:**

If the **PAN SIZE** is 10 and the shortage is 32, then 4 orders (each having an order quantity of 10) are suggested.

### *I - Min of EBQ*

If a shortage occurs, the order quantity is the quantity required to meet the shortage, unless this is less than the **ECONOMIC BATCH QUANTITY** (in which case the EBQ is used).

**FOR EXAMPLE:**

If the **ECONOMIC BATCH QUANTITY** is 10 and the shortage is 8, then the order quantity is 8 (the 8 required to meet the shortage is less than the EBQ, so the EBQ is used). However, if the shortage is 32 and the **ECONOMIC BATCH QUANTITY** is 10 then the order quantity is 32.

### *J - Minimum of pan*

This rule is identical to rule I, except that the pan quantity is used instead of the **ECONOMIC BATCH QUANTITY**.

If a shortage occurs, the order quantity is the quantity required to meet the shortage, unless this is less than the **PAN SIZE** (in which case the **PAN SIZE** is used).

**FOR EXAMPLE:**

If the **PAN SIZE** is 10 and the shortage is 8, then the order quantity is 8 (the 8 required to meet the shortage is less than the **PAN SIZE**, so the **PAN SIZE** is used). However, if the shortage is 32 and the **PAN SIZE** is 10 then the order quantity is 32.

### *K - Multiples of EBQ fixed time*

This rule is a combination of rules B and C.

The order quantity is calculated by adding all the shortages in the fixed time period ahead.

Once this total shortage quantity has been calculated, then this is rounded up to the next multiple of the **ECONOMIC BATCH QUANTITY**.

#### *L - Multiples of pan fixed time*

This rule is a combination of rules F and C and is identical to rule K, except that the pan quantity is used instead of the economic batch quantity.

The order quantity is calculated by adding all the shortages in the fixed time period ahead.

Once this total shortage quantity has been calculated, then this is rounded up to the next multiple of the **PAN SIZE**

#### *M - Multiple EBQ lots fixed time*

This rule is a combination of rules G and C.

The order quantity is calculated by adding all the shortages in the fixed time period ahead.

Once this total shortage quantity has been calculated, then multiple orders (each the size of the **ECONOMIC BATCH QUANTITY**) are suggested.

#### *N - Multiple pan lots fixed time*

This rule is a combination of rules H and C and is identical to rule M, except that the pan quantity is used instead of the **ECONOMIC BATCH QUANTITY**.

The order quantity is calculated by adding all the shortages in the fixed time period ahead.

Once this total shortage quantity has been calculated, then multiple orders (each the size of the pan) are suggested.

#### *O - Min of EBQ thereafter multiples of pan*

If a shortage occurs, the order quantity is at least the **ECONOMIC BATCH QUANTITY**. However, if the EBQ is insufficient to satisfy the shortage, then the remaining shortage is rounded up to the next multiple of the pan quantity.

##### **FOR EXAMPLE:**

If the **ECONOMIC BATCH QUANTITY** is 10 and the pan quantity is 5, a shortage of 3 would cause an order quantity of 10 (the shortage is less than the EBQ). A shortage of 23 would cause an order quantity of 25.

#### *P - Suppress MRP ordering*

Demand generated for this item won't result in any suggested replenishment orders, unless you have indicated that batching rules must be overridden (*Setup Options > Preferences > Manufacturing > Requirements Planning*).

This is the default batching rule for an item defined as a **By-product** and cannot be changed.

In addition, when you set the **STOCK CODE STATUS** to **Clear**, the batching rule for that stock code is automatically set to **P - Suppress MRP ordering**. This cannot be changed until the **STOCK CODE STATUS** is changed to either **Normal** or **Temporary**.

#### *Q - Apply warehouse order policy*

This indicates that would like to define the order policies against the individual warehouses in which the item is stocked, using the **Warehouse Maintenance for Stock Code** program (*Program List > Inventory > Setup*).

Different order policies can be defined for each warehouse in which the item is stocked. The following order policies are available:

- C - Cover shortages
- I - Cover shortages if less than min
- M - Order to max if less than min
- O - Cover shortages less than min overages up to max
- P - Suppress MRP ordering
- S - Order to max if shortage

# Starting

## Prerequisites

To use this feature, the following setup option(s) must be enabled:

### Requirements Planning Configuration

*Setup Options > Configuration > Manufacturing > Requirements Planning*

- Schedule jobs and purchase orders



This setup option must be enabled for the O - Cover shortages less than min overages up to max order policy.

## Licensing

### O - Cover shortages less than min overages up to max

The following modules should *not* be installed for the O - Cover shortages less than min overages up to max order policy:

- Inventory Forecasting
- Inventory Families and Groupings
- Inventory Optimization



If the O - Cover shortages less than min overages up to max order policy is defined against a stock code and the inventory file is shared between companies where one company has one of these modules installed, SYSPRO reverts back to using the I - Cover shortages if less than min order policy.

## Security

You can secure this feature by implementing a range of controls against the affected programs. Although not all these controls are applicable to each feature, they include the following:

- You restrict operator access to *activities* within a program using the **Operator Maintenance** program.
- You can restrict operator access to the *fields* within a program (configured using the **Operator Maintenance** program).

- You can restrict operator access to *functions* within a program using passwords (configured using the **Password Definition** program). When defined, the password must be entered before you can access the function.
- You can restrict access to the eSignature *transactions* within a program at operator, group, role or company level (configured using the **eSignature Setup** program). Electronic Signatures provide security access, transaction logging and event triggering that gives you greater control over your system changes.
- You can restrict operator access to *programs* by assigning them to groups and applying access control against the group (configured using the **Operator Groups** program).
- You can restrict operator access to *programs* by assigning them to roles and applying access control against the role (configured using the **Role Management** program).

## Restrictions and Limits

- The following restrictions and limits apply to the O - Cover shortages less than min overages up to max order policy:
  - A maximum and minimum quantity must be defined in the **Warehouse Maintenance for Stock Code** program.
  - This order policy is not used in ECC depletion (it does not cater for the ECC deplete oldest rev/rel) and will be replaced with order policy I - Cover shortages if less than min if order policy O - Cover shortages less than min overages up to max is defined for the stock code.

# Solving

## FAQs

### How are order policies mapped to batching rules?

The following tables indicate how to configure order policies for each stock code and warehouse combination, to provide the same outcome as the batching rules:



Order policies allow for additional combinations which weren't available using the batching rules, such as **Minimum of EBQ (fixed time)**, **Minimum of pan (fixed time)** and **Minimum of EBQ Thereafter Multiples of pan (fixed time)**.

### Order Policy C

Batching rule	Fixed time period	Order multiples	Min order qty	Max order qty
<p>A - Lot for lot</p> <p>The order quantity is the shortage quantity.</p>	1-99	Same as pan	0	0
<p>B - Multiples of EBQ</p> <p>To calculate the order quantity, the shortage quantity is rounded up to the next multiple of the economic batch quantity.</p> <p>K - Multiples of EBQ fixed time</p> <p>This rule is a combination of rules B and C.</p> <p>The order quantity is calculated by adding all the shortages in the fixed time period ahead.</p> <p>Once this total shortage quantity has been calculated, then this is rounded up to the next multiple of the <b>ECONOMIC BATCH QUANTITY</b>.</p>	1-99	0	Could be 0	
<p>C - Fixed time period</p> <p>When a shortage is encountered, the order quantity is calculated by adding all the shortages in the fixed time period ahead (i.e. a consolidation of all orders in the chosen time period into a single order quantity).</p>	1-99			

Batching rule	Fixed time period	Order multiples	Min order qty	Max order qty
<p>D - Order to maximum if shortage</p> <p>When a shortage is encountered, the order quantity is calculated to increase the stock holding up to the maximum quantity defined against the warehouse.</p>	1-99	0	0	0
<p>E - Order to max if less than min</p> <p>As soon as the result field falls below the minimum quantity (during netting-off) an order quantity is calculated to order enough to increase the quantity available up to the maximum quantity.</p>	1-99	0	0	0
<p>F - Multiples of pan</p> <p>To calculate the order quantity, the shortage quantity is rounded up to the next multiple of the pan size.</p> <p>L - Multiples of pan fixed time</p> <p>This rule is a combination of rules F and C and is identical to rule K, except that the pan quantity is used instead of the economic batch quantity.</p> <p>The order quantity is calculated by adding all the shortages in the fixed time period ahead.</p> <p>Once this total shortage quantity has been calculated, then this is rounded up to the next multiple of the <b>PAN SIZE</b></p>	1-99	Same as pan	Could be 0	
<p>G - Multiple EBQ lots</p> <p>If a shortage occurs, then multiple orders are created to satisfy the shortage, each the size of the <b>ECONOMIC BATCH QUANTITY</b>.</p> <p>M - Multiple EBQ lots fixed time</p> <p>This rule is a combination of rules G and C.</p> <p>The order quantity is calculated by adding all the shortages in the fixed time period ahead.</p> <p>Once this total shortage quantity has been calculated, then multiple orders (each the size of the <b>ECONOMIC BATCH QUANTITY</b>) are suggested.</p>	1-99	0	Same as EBQ	Same as EBQ

Batching rule	Fixed time period	Order multiples	Min order qty	Max order qty
<p>H - Multiple pan lots</p> <p>If a shortage occurs, then multiple orders are created to satisfy the shortage, each the size of the pan.</p> <p>N – Multiple pan lots (fixed time)</p> <p>This rule is a combination of rules H and C and is identical to rule M, except that the pan quantity is used instead of the <b>ECONOMIC BATCH QUANTITY</b>.</p> <p>The order quantity is calculated by adding all the shortages in the fixed time period ahead.</p> <p>Once this total shortage quantity has been calculated, then multiple orders (each the size of the pan) are suggested.</p>	1-99	0	Same as pan	Same as pan
<p>I - Min of EBQ</p> <p>If a shortage occurs, the order quantity is the quantity required to meet the shortage, unless this is less than the <b>ECONOMIC BATCH QUANTITY</b> (in which case the EBQ is used).</p>	1-99	0	Same as EBQ	0
<p>J - Minimum of pan</p> <p>If a shortage occurs, the order quantity is the quantity required to meet the shortage, unless this is less than the <b>PAN SIZE</b> (in which case the <b>PAN SIZE</b> is used).</p>	1-99	0	Same as pan	0
<p>O - Min of EBQ thereafter multiples of pan</p> <p>If a shortage occurs, the order quantity is at least the <b>ECONOMIC BATCH QUANTITY</b>. However, if the EBQ is insufficient to satisfy the shortage, then the remaining shortage is rounded up to the next multiple of the pan quantity.</p>	1-99	Same as pan	Same as EBQ	0

## Order Policy P

Batching rule	Fixed time period	Order multiples	Min order qty	Max order qty
P - Suppress MRP ordering Demand generated for this item won't result in any suggested replenishment orders, unless you have indicated that batching rules must be overridden ( <i>Setup Options &gt; Preferences &gt; Manufacturing &gt; Requirements Planning</i> ).	n/a	n/a	n/a	n/a

## Where and when are order policies applied in SYSPRO?

SYSPRO applies the order policies when calculating the following:

- Suggested jobs for made-in stock items in the **Requirements Calculation** program.
- Suggested purchase requisitions for bought-out stock items in the **Requirements Calculation** program.
- Suggested supply chain transfers for transfer-supplied stock items in the **Requirements Calculation** program.
- Suggested build schedules for master production schedule (MPS) items in the **MPS Review** and **MRP Master Production Schedule** programs.
- Live build schedules in the **Initial Build Extract** program.

## How do I define an order policy for a stock code?

Proceed as follows to define which order policy to use:

1. Within the **Stock Code Maintenance** program, select the **Q - Apply warehouse order policy** option at the **Batching rule** field.
2. Within the **Warehouse Maintenance for Stock Code** program, select which order policy you want to use against the **Order policy** field:
  - C - Cover shortages
  - I - Cover shortages if less than min
  - M - Order to max if less than min
  - O - Cover shortages less than min overages up to max
  - P - Suppress MRP ordering
  - S - Order to max if shortage

3. Within the **Warehouse Maintenance for Stock Code** program, define the amounts required against the **Minimum quantity** and **Maximum quantity** fields.

This lets the MRP generate the demand for the order policy.

## What is the difference between order policies and batching/buying rules in SYSPRO?

Prior to the implementation of the order policy functionality, SYSPRO used batching rules with the **ECONOMIC BATCH QUANTITY**, **PAN SIZE** and **FIXED TIME PERIOD (DAYS)** fields defined in the **Stock Code Maintenance** program to implement order policies.

This functionality has the following limitations:

- The batching rule is implemented at stock code level, which can't be used when different warehouses have different replenishment rules for the same stock code, as in the following instances:
  - A branch warehouse may have different local costing and storage issues.
  - Manufacturing and distribution warehouses have different requirements (when SYSPRO's Distribution Requirements Planning is not used).
- Batching rules had to be hard-coded each time SYSPRO customers wanted to use **ECONOMIC BATCH QUANTITY/PAN SIZE/FIXED TIME PERIOD (DAYS)** in a different combination as specific wording used in the batching rules (such as EBQ and pan) rather than more generic terms (such as major and minor order multiples).

The order policy functionality and its related fields address these problems and provide more flexibility. Order policies provide the same functionality as batching rules A to P, as well as additional flexibility for to create new combinations of fixed time with order quantities and modifiers.

# Using

## Process



Setting up order policies for a stock code and warehouse combination differs between transfer-supplied items and non-transfer-supplied items.

### Configuring order policies for non transfer-supplied stock codes

1. Add or maintain the stock code in the **Stock Code Maintenance** program.
2. Select Q - Apply warehouse order policy at the **Batching rule** field of the **Replenishment** pane of the **Stock Code Maintenance** program.
3. Specify the order policy details (such as the minimum and maximum quantities) in the **Warehouse Maintenance for Stock Code** program.



The order policy can't be applied if the value is defined as zero in the **Minimum quantity** and **Maximum quantity** fields of the **Warehouse Maintenance for Stock Code** program.

### Configuring order policies for transfer-supplied stock codes

1. Add or maintain the stock code in the **Stock Code Maintenance** program.
2. Enable the **Transfer supplied item** and **Use warehouse buying rule** fields in the **Warehouse Maintenance for Stock Code** program and specify the order policy details.



A value greater than zero must be entered at the **Fixed time period (days)** field in the **Transfer supplied details** section in to save your transfer supply details. However, this value is not actually used by the order policies.

To take fixed time into account, enter the value at the **Fixed time period** field in the **Order policy details** section.

# Order Policy Rules

## All Order Policies

The following rules apply to the calculation of order quantities, regardless of the order policy you have selected for the stock code and warehouse combination:

A1	<p>The major order multiple must be less than the minor order multiple in the <b>Warehouse Maintenance for Stock Code</b> program.</p> <p>If the major order multiple has been set to less than the minor order multiple (using the <b>Report Writer</b> program for example) then the minor order multiple value is used as the major order multiple value during the calculation of the order quantity and vice versa.</p>
A2	<p>The maximum order quantity must be less than the minimum order quantity in the <b>Warehouse Maintenance for Stock Code</b> program.</p> <p>If the maximum order quantity has been set to less than the minimum order quantity using the <b>Report Writer</b> program for example, then the maximum order quantity is set to 0.</p>
A3	<p>If the maximum order quantity is less than the major order multiple, then the maximum order quantity is set to 0.</p>
A4	<p>If the shortage is more than the maximum order quantity, then an order quantity equal to the maximum order quantity is created and multiple orders thereafter.</p>
A5	<p>If the major order multiple is applied to the order quantity and a remainder exists which results in the order quantity being greater than the maximum order quantity, then the order quantity is reduced by the major order multiple.</p>
A6	<p>If the major order multiple is applied to the order quantity and a remainder exists which results in the minor order multiple being applied to the order quantity, the following occurs:</p> <ul style="list-style-type: none"> <li>▪ If the minor order multiple causes the order quantity to be more than maximum order quantity, then the order quantity is reduced by the minor order multiple order quantity.</li> <li>▪ If the remainder causes the order quantity to be more than the maximum order quantity, then the order quantity is reduced by the minor order multiple.</li> </ul>
A7	<p>If the order quantity is more than the maximum order quantity (after applying the order multiples and adding the minimum order quantity), then the minimum order quantity is subtracted from the order quantity.</p>

A8	If a shortage remains after applying the order modifiers, multiple orders are created until the shortage is satisfied.
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### Order Policy: C - Cover shortages

The following rules apply to the calculation of order quantities for stock code and warehouse combinations with order policy C:

C1	If the fixed time period is greater than 1, the total shortage for the number of days specified is added before calculating the order quantity.
C2	If you have a minimum order quantity and the shortage is less than the minimum order quantity, then the minimum order quantity is used to create the order and any order multiples are ignored.
C3	If you have a minimum order quantity and the shortage is greater than the minimum order quantity, then the minimum order quantity is subtracted from the shortage and the order multiples are applied to the remaining shortage. Thereafter the minimum order quantity is added to the result to give the final order quantity.



Fixed time is only applied for order policy C.

### Order Policy: I - Cover shortages if less than min

The following rules apply to the calculation of order quantities for stock code and warehouse combinations with order policy I:

I1	An order is only suggested if the available quantity is less than the warehouse minimum.
I2	If you have a minimum order quantity and the shortage is less than the minimum order quantity, then the minimum order quantity is used to create the order and any order multiples are ignored.
I3	If you have a minimum order quantity and the shortage is greater than the minimum order quantity, then the minimum order quantity is subtracted from the order quantity and any order multiples are applied to the remaining shortage. Thereafter, the minimum order quantity is added again to give the final order quantity.
I4	The maximum quantity against the warehouse is not considered with this order policy. The maximum order quantity is considered and can't be exceeded. If the shortage exceeds the maximum order quantity, then the maximum order quantity is used and any order multiples are ignored.

## Order Policy: M - Order to max if less than min

The following rules apply to the calculation of order quantities for stock code and warehouse combinations with order policy M:

M1	An order is only suggested if the available quantity is less than the warehouse minimum.
M2	If you have a minimum order quantity and the shortage (warehouse maximum- available) is less than the minimum order quantity, an order is not suggested.
M3	If you have a minimum order quantity and the shortage (warehouse maximum – stock available) is greater than the minimum order quantity, then the minimum order quantity is subtracted from the order quantity and any order multiples are applied to the remaining shortage. Thereafter, the minimum order quantity is added again to give the final order quantity.
M4	In the case of a maximum order quantity or multiples, multiple orders are created, as long as the maximum quantity against the warehouse (warehouse maximum - stock available) is not exceeded. No orders are suggested for any remaining shortage once the maximum quantity is exceeded.

## Order Policy: O - Cover shortages less than min overages up to max

The following rules apply to the calculation of order quantities for stock code and warehouse combinations with order policy O:

O1	An order is only suggested if the available quantity is less than the warehouse minimum.
O2	If you have a minimum order quantity and the shortage is less than the minimum order quantity, then the minimum order quantity is used to create the order and any order multiples are ignored.
O3	If you have a minimum order quantity and the shortage is greater than the minimum order quantity, then the minimum order quantity is subtracted from the shortage and the order multiples are applied to the remaining shortage. Thereafter the minimum order quantity is added to the result to give the final order quantity.
O4	Existing supply is checked against the warehouse max and if the max is not exceeded then the supply is not flagged as a cancel action.

## Order Policy: S - Order to max if shortage

The following rules apply to the calculation of order quantities for stock code and warehouse combinations with order policy S:

S1	If you have a minimum order quantity and the total shortage (warehouse maximum + shortage) is the less than the minimum order quantity, no order will be suggested.
S2	If you have a minimum order quantity and the total shortage (shortage + warehouse maximum) is greater than the minimum order quantity, then the minimum order quantity is subtracted from the shortage and any order multiples are applied to the remaining order quantity. Thereafter, the minimum order quantity is added again to give the final order quantity.
S3	Multiple orders are created in the case of a maximum order quantity, unless the warehouse maximum plus the shortage is exceeded. In this case, no orders for remaining shortages are suggested.

## Order Policy: P - Suppress MRP ordering

The requirements calculation doesn't calculate any replenishment orders for stock shortages with this order policy.



This order policy doesn't suppress the calculation of suggested build schedules for MPS items in the **MPS Review** and **MRP Master Production Schedule** programs, or the calculation of live build schedules in the **Initial Build Extract**. The build schedules are calculated using the lot-for-lot method for MPS items with an order policy of P.

## Sample Usage in Requirements calculation

The following examples illustrate the effect of order policies in the requirements calculation in SYSPRO. The order policies are applied at stock code/warehouse level when calculating suggested replenishment quantities.



The examples assume that the available quantity is zero at the start of the first day and that no supplies affect the available quantity other than the calculated order quantity.

### Order Policy C - Cover shortages

These examples demonstrate the effect of order policy C in the calculation of suggested replenishment quantities:

Order Policy Fields	Value
Major order multiple	16
Minor order multiple	7
Minimum order quantity	12
Maximum order quantity	200
Fixed time period	1

### Fixed time period is 1

Data	Day 1	Day 2	Day 3
Forecast	8	75	210
Available (includes calculated order quantity from previous day)	0	4	3
Net requirement (shortage)	8	71	207
Order quantity	12	74	12 200

As the requirements calculation is done for a fixed time period of 1, order quantities are calculated for each day (rule C1):

#### FOR EXAMPLE:

#### Day 1:

1. Shortage = forecast - available

a. Shortage =  $8 - 0 = 8$

2. Minimum order quantity = 12



As the order quantity is more than the shortage, rule C2 applies making the order quantity 12.

### Day 2:

1. Shortage = 71

2. Minimum order quantity = 12



The order quantity is more the minimum order quantity (rule C3).

a. The order quantity is subtracted from the shortage:

i.  $71 - 12 = 59$

b. The major order multiple is applied to the remaining shortage:

i.  $59 / 16 = 3.6875$  rounded down = 3

ii. Quantity calculated =  $3 \times 16 = 48$

iii. Remaining shortage =  $59 - 48 = 11$

c. The minor order multiple is applied to the remaining shortage:

i.  $11 / 7 = 1.571$  rounded up = 2

ii. Quantity calculated =  $2 \times 7 = 14$

d. The minimum order quantity is re-added to the calculation:

i. Order quantity =  $48 + 14 + 12 = 74$

### Day 3:

1. Shortage = 207



The shortage is more than the maximum order quantity of 12 (rule A4).

2. Calculate order quantity:

- a. First order quantity = maximum order quantity = 200
- b. Remaining shortage = Shortage – first order quantity
  - i.  $207 - 200 = 7$



As the remaining shortage is less than minimum order quantity, the second order quantity = minimum order quantity = 12 (rule C2).

## Fixed time period is greater than 1

In this scenario, the requirements calculation is performed for a fixed time period of 3:

Data	Day 1	Day 2	Day 3
Forecast	8	75	70
Available for each day (excluding order quantities)	0	0	0
Net requirement for each day (shortage)	8	75	70
Order quantity	154	0	0
Balance (includes order quantity)	146	71	1

As the fixed time period is more than 1, the shortages are added for the number of days specified before calculating the order quantity for the first day (rule C1).

### FOR EXAMPLE:

1. Shortage = shortage day 1 + shortage day 2 = shortage day 3

- a.  $8 + 75 + 70 = 153$



The shortage is more than the minimum order quantity of 12 (rule C3).

2. Shortage – minimum order quantity

- a.  $153 - 12 = 141$

- b. Apply major order multiple to the remaining shortage

- i.  $141 / 16 = 8.8125$  rounded down = 8

- ii. Quantity calculated =  $8 \times 16 = 128$

- iii. Remaining shortage =  $141 - 128 = 13$

- c. Apply minor order multiple to the remaining shortage:

- i.  $13 / 7 = 1.8571$  rounded up = 2
- ii. Quantity calculated =  $2 \times 7 = 14$
- d. Add minimum order quantity to the quantities calculated
  - i. The order quantity for the 3 days =  $128 + 14 + 12 = 154$

### Order Policy I - Cover shortages if less than min

This example demonstrates the effect of order policy I in the calculation of suggested replenishment quantities:

Order Policy Fields	Value
Warehouse minimum	250
Warehouse maximum	0
Minimum order quantity	12
Maximum order quantity	200
Fixed time period	1

Data	Past due	Day 1	Day 2	Day 3
Forecast	0	8	75	210
Available	0	250	254	250
Net requirement (demand)	0	8	75	210
Order quantity	250	12	71	212

**FOR EXAMPLE:**

**Past due:**

1. Shortage = minimum warehouse level = 250
2. Supply = 250
3. Available = supply + (quantity on hand) - shortage
  - a.  $250 + 0 - 0 = 250$
4. Warehouse minimum = 250

5. Minimum order quantity = 12 (this is used to create the order quantity (supply))
6. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
7. Supply = 250 (Warehouse maximum = 0)

**Day 1:**

1. Shortage = forecast - available
  - a.  $8 - 250 + 12$  (warehouse minimum + minimum order quantity) = 250 (BODMAS)
2. Supply = 12
3. Available = supply + (quantity on hand) - shortage
  - a.  $12 + 250 - 8 = 254$
4. Minimum order quantity = 12 (this is used to create the order quantity (supply))
5. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
6. Supply = 12 (stock can't fall below the warehouse minimum)

**Day 2:**

1. Shortage = forecast - available
  - a.  $75 - 254 + 71 = 250$
2. Supply = 71
3. Available = supply + (quantity on hand) - shortage
  - a.  $71 + 254 - 75 = 250$
4. Minimum order quantity = 12 (this is used to create the order quantity (supply))
5. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
6. Supply = 71 (stock can't fall below the warehouse minimum)

**Day 3:**

1. Shortage = forecast - available
  - a.  $210 - 250 + 212 = 252$
2. Supply = 212
3. Available = supply + (quantity on hand) - shortage
  - a.  $212 + 250 - 210 = 252$
4. Minimum order quantity = 12 (this is used to create the order quantity (supply))
5. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
6. Supply = 212

## Order Policy M - Order to max if less than min

This example demonstrates the effect of order policy M in the calculation of suggested replenishment quantities:

Order Policy Fields	Value
Major order multiple	250
Minor order multiple	50
Minimum order quantity	0
Maximum order quantity	400
Warehouse minimum	100
Warehouse maximum	500

Data	Past due	Day 1	Day 2	Day 3
Balance from previous day	0	500	492	500
Forecast	0	8	492	550
Available	0	492	0	0
Shortage	0	0	0	50
Below minimum of 100	Yes	No	Yes	Yes
Total shortage (shortage + warehouse maximum)	500	0	500	550
Order quantity	400	0	400	400
	100		100	150

### FOR EXAMPLE:

1. Available stock < warehouse minimum

- a.  $0 < 100$



Calculate the suggested replenishment orders (rule M1).

2. Total shortage > maximum order quantity

a.  $500 > 400$



The first order quantity is 400 (rule A4).

3. Remaining shortage = total shortage - first order quantity

a.  $500 - 400 = 100$

4. Remaining shortage < maximum order quantity:

a.  $100 < 400$



The remaining shortage is less than the minimum order quantity, which is 0 (rule M4).

b. Apply major order multiple to the remaining shortage:

i.  $100 / 50 = 2$  with no remainder

ii. Quantity calculated =  $2 \times 50 = 100$

c. There is no remaining shortage, therefore the second order quantity is 100.

#### Day 1:

The available stock is more than the warehouse minimum, therefore there are no suggested orders.

#### Day 2:

1. Available < warehouse minimum.

a.  $0 < 100$



Calculate suggested replenishment orders (rule M1) as for day 1.

#### Day 3:

1. Available < warehouse minimum, therefore calculate suggested replenishment orders (rule M1).

a.  $0 < 100$

2. Total shortage is more than the maximum order quantity

a.  $550 > 400$



The first order quantity is 400 (rule A4).

3. Remaining shortage

a.  $550 - 400 = 150$

4. Remaining shortage < maximum order quantity

a.  $150 < 400$



Minimum order quantity is 0 (rule M4).

b. Apply the major order multiple to the remaining shortage:

i.  $150 / 50 = 3$  with no remainder

ii. Quantity calculated =  $3 \times 50 = 150$

c. There is no remaining shortage, therefore the second order quantity = 150.

### Order Policy O - Cover shortages less than min overages up to max

This example demonstrates the effect of order policy O in the calculation of suggested replenishment quantities:



In this example, the MRP calculation must be re-run daily to include the live jobs that were created manually.

Order Policy Fields	Value
Warehouse minimum	250
Warehouse maximum (mandatory > warehouse minimum)	400
Minimum order quantity	12
Maximum order quantity	200
Fixed time period	1

Data	Past due	Day 1	Day 2
Forecast	0	8	75
Available	0	250	392
Net requirement (demand)	0	8	75
Order quantity (supply)	250	150	71

**FOR EXAMPLE:**

**Past due:**

1. Shortage = minimum warehouse level = 250
2. Supply = 250
3. Available = supply + (quantity on hand) - shortage
  - a.  $250 + 0 - 0 = 250$
4. Warehouse minimum = 250
5. Minimum order quantity = 12 (this is used to create the order quantity (supply))
6. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
7. Supply = 250 (maximum order quantity = 200 + (cover shortage = 50))

***Create suggested job for 200 and 50.***

**Day 1:**

1. Shortage = forecast - available
  - a.  $8 - 250 + 12$  (warehouse minimum + minimum order quantity) = 254 (BODMAS)
2. Supply = 12
3. Available = supply + (quantity on hand) - shortage
  - a.  $12 + 250 - 8 = 254$
4. Minimum order quantity = 12 (this is used to create the order quantity (supply))
5. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
6. Supply = 12 (stock can't fall below the warehouse minimum)

***Create a job for 150 manually.***

**Day 2:**

1. Shortage = forecast - available
  - a.  $= 75 - 392$
  - b.  $= -317 \times -1 = 317$
2. Supply = 0
3. Available = supply + (quantity on hand) - shortage
  - a.  $0 + 392 - 75 = 317$
4. Minimum order quantity = 12 (this is used to create the order quantity (supply))
5. Maximum order quantity = 200 (this is used to cap the order quantity (supply))
6. Supply = 71 (stock can't fall below the warehouse minimum)

***Add a job for 300 (there is no cancel action)***

**Add a job for 1 (there is a suggested cancel action) this exceeds the warehouse maximum**

## Order Policy S - Order to max if shortage

This example demonstrates the effect of order policy S in the calculation of suggested replenishment quantities:

Order Policy Fields	Value
Major order multiple	10
Minor order multiple	4
Minimum order quantity	5
Maximum order quantity	60
Warehouse maximum	100

Data	Day 1	Day 2	Day 3
Available (includes calculated order quantity from previous day)	0	100	25
Forecast	13	75	70
Shortage	13	0	45
Net requirement (shortage + warehouse maximum)	113	0	145
Order quantity	60	0	60
	53		60
			25

### FOR EXAMPLE:

#### Day 1:

1. Shortage + warehouse maximum is greater than the maximum order quantity.
  - a.  $(13 + 100) > 60$



The order quantity is 113, therefore the first order quantity is 60 (rule A4).

2. Remaining shortage = order quantity - maximum order quantity

a.  $113 - 60 = 53$



The remaining order quantity is 53, i.e. less than the maximum order quantity of 60 (rule S2).

3. Remaining order quantity - minimum order quantity

a.  $53 - 5 = 48$

b. Apply major order multiple to the remaining shortage:

i.  $48 / 10 = 4.8$  (rounded down to 4)

ii. Quantity calculated =  $4 \times 10 = 40$

iii. Remaining shortage =  $48 - 40 = 8$

c. Apply minor order multiple to the remaining shortage:

i.  $8 / 4 = 2$

ii. Quantity calculated =  $2 \times 4 = 8$

d. Add minimum order quantity to the quantities calculated:

i. Second order quantity =  $0 + 8 + 5 = 13$

### Day 2:

There are no suggested orders as there is no shortage.

### Day 3:

1. Shortage + warehouse maximum is less than the maximum order quantity.

a.  $(45 + 100) > 60$



The first order quantity is 60 (rule A4).

2. Remaining shortage = first order quantity - maximum order quantity

a.  $145 - 60 = 85$



The remaining order quantity is 85, i.e. more than the maximum order quantity of 60 (rule A4).

3. Further remaining shortage

a.  $145 - 120 = 25$



The further remaining shortage is 25, i.e. less than the maximum order quantity of 60 (rule S2).

b. Shortage - minimum order quantity:

i.  $25 - 5 = 20$

ii.  $20 / 10 = 2$  with no remainder

iii. Quantity calculated =  $2 \times 10 = 20$

c. Add minimum order quantity to the quantity calculated:

i. Third order quantity =  $20 + 5 = 25$

## Sample Usage in MPS Review

In SYSPRO, live build schedules typically form the independent demand that drives the MRP calculation for master production schedule (MPS) stock items. The master scheduler adds these build schedules as required or converts suggested build schedules (calculated by SYSPRO) to live build schedules.

Suggested build schedules are calculated by the **MPS Review** program based on a number of inputs, including the selections made at the **GROSS REQUIREMENT RULE** option for each MPS item (*Setup Options > Preferences > Manufacturing > Requirements Planning*).

SYSPRO applies the order policies during the calculation of suggested build schedules following a similar procedure as detailed in the requirements calculation examples, except:

- The fixed time period is not applied.
- Discrete order quantities calculated for any particular day are totaled to give the suggested build schedule for that day.

When the material planner runs the requirements calculation, SYSPRO applies the order policies to any shortages for included MPS items using the same calculation as for any other included item.



If the **BUILD SCHEDULE** setup option is disabled (*Setup Options > Preferences > Manufacturing > Requirements Planning*) when running the requirements calculation, then build schedules are ignored and the Requirements Calculation derives the MPS demand from other sources based on the selections at the **GROSS REQUIREMENT RULE** fields of the **Stock Code Maintenance** program and the other setup options in the **PLANNING** section.

### Order Policy C - Cover shortages

These examples demonstrate the effect of order policy C in the calculation of suggested replenishment quantities:

Order Policy Fields	Value
Major order multiple	16
Minor order multiple	7
Minimum order quantity	12
Maximum order quantity	200
Fixed time period	1

Data	Day 1	Day 2	Day 3
Forecast	8	75	210
Projected available	0	4	3
Shortage	8	71	207

The suggested build schedules that the **MPS Review** program calculates for an MPS item with the above order policy settings are as follows:

**FOR EXAMPLE:**

**Day 1:**

1. Shortage = forecast - available
  - a. Shortage =  $8 - 0 = 8$
2. Shortage < minimum order quantity
  - a.  $8 < 12$



As the order quantity is more than the shortage, rule C2 applies making the order quantity 12.

**Day 2:**

1. Shortage = forecast - available
  - a.  $75 - 4 = 7$



The shortage is more than the minimum order quantity (rule C3).

2. Shortage - minimum order quantity
  - a.  $71 - 12 = 59$
3. Apply major order multiple to the remaining shortage:
  - a.  $59 / 16 = 3.6875$  rounded down = 3
  - b. Quantity calculated =  $3 \times 16 = 48$
  - c. Remaining shortage =  $59 - 48 = 11$
4. Apply minor order multiple to the remaining shortage:
  - a.  $11 / 7 = 1.571$  rounded up = 2

b. Quantity calculated =  $2 \times 7 = 14$

5. Re-add the minimum order quantity to the quantities calculated

a. Suggested build schedule =  $48 + 14 + 12 = 74$

### Day 3:

1. Shortage = forecast - available

a.  $210 - 3 = 207$



$207 >$  maximum order quantity, therefore apply rule A4.

i. First order quantity = maximum order quantity = 200

ii. Calculate remaining shortage: shortage - first order quantity

a.  $207 - 200 = 7$

2. Remaining shortage  $<$  minimum order quantity.

a. Second order quantity = minimum order quantity = 12 (rule C2)

3. Add all order quantities for the day

a. Suggested build schedule =  $200 + 12 = 212$



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