



Managing BOM

Explanation of beas Bill of Material Master Data

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1. INTRODUCTION

Bill of Materials, also known as BOM, is a set of all raw materials, subassemblies, intermediary components and bought parts that are used in the manufacturing or assembly processes of an item. This is also known as a recipe, depending on the manufacturing industry.

For each material listed in the bill of materials, the user can define the quantity needed to produce the finished product.

In beas, inside an item's bill of materials, we will find a list of all materials and their corresponding quantities, units of measure, warehouses, scrap rates (amongst other settings), as well as the link between bill of materials and the specific production operation in which each component will be used, ensuring the possibility to plan material requirements according to production scheduling.

Since a bill of materials can include subassemblies, we can have several levels of productions inside a finished product's bill of materials. Beas can manage all production levels within the same work order, by creating related production positions that makes it easy to view all the assemblies that need to be produced to finish the production of an item without the need to look into different screens.

However, in the case that subassemblies are shared amongst several different finished products, carefully structuring the bill of materials can provide a great advantage in the production planning activities, since the production requirements for the subassemblies can be consolidated by the MRP tool in a separate work order.

IMPORTANT: In **discrete manufacturing**, bills of materials normally have several production levels linked to each other. In beas, the bill of materials can be configured to automatically create production positions for subassemblies or to allow separate planning of subassemblies production.

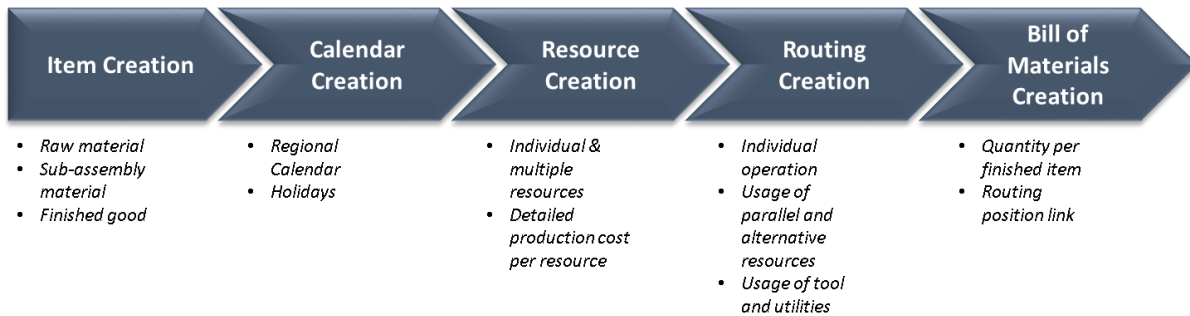
IMPORTANT: In **process manufacturing**, that is the production of goods that are typically produced in bulk quantities as opposed to discrete and countable units (normally associated with formulas and manufacturing recipes), bill of materials normally have one or only a few production levels linked to each other, and subassemblies are generally shared among several different finished products. In beas, we can configure the bill of materials to not automatically create production positions for subassemblies, allowing separate planning of subassemblies production using MRP.

In this document, the user will learn how to set up and manage the bill of materials in beas.

Additionally, it is possible to assign material to the routings, to determine the specific step of the production process in which they have to be consumed.

2. PROCESS

To navigate through the bill of materials (BOM) master data, it is essential to follow the correct flow of the process: "**Building an Item Structure**" For more information, please refer to the *Item Structure* tutorial.



So far, we have answered the first question:

1. "What are we producing?" – answered in the *Item Master Data* Tutorial
2. "When are we producing?" – answered in the *Calendar Master Data* Tutorial
3. "Where are we producing?" – answered in the *Resources Master Data* Tutorial.

Bill of materials will help us answer the fourth question regarding the manufacturing process which is:

"How are we producing?"

This question involves two concepts:

- Routings are where we define standard production times, parallel or alternative resources. This concept is explained in the *Routing Master Data* tutorial.
- Bill of materials is where we define the recipe or the list of component parts to produce the finished good or sub-assembly.

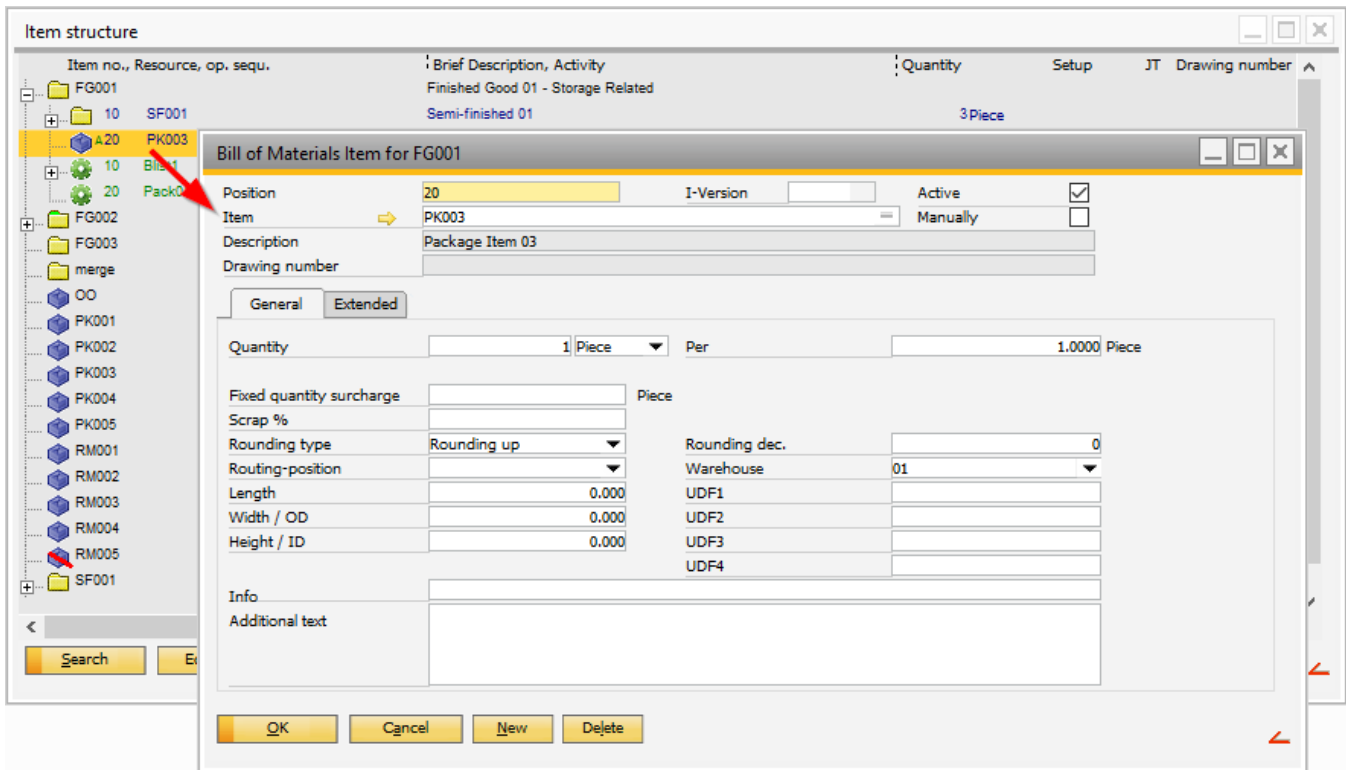
In this section, we navigate through the most relevant fields when creating a bill of material in beas. In the Field Guide section, we include all fields available in the bill of materials master data.

In beas, there are three ways to access an item's bill of materials:

PATH: Inventory > Item structure > Double click the item where user wants to include a bill of materials > Go to the *Bill of Materials* Tab > Click on *New* (for new bill of materials) or *Edit* (for existing bill of materials). This will be detailed later in this document.

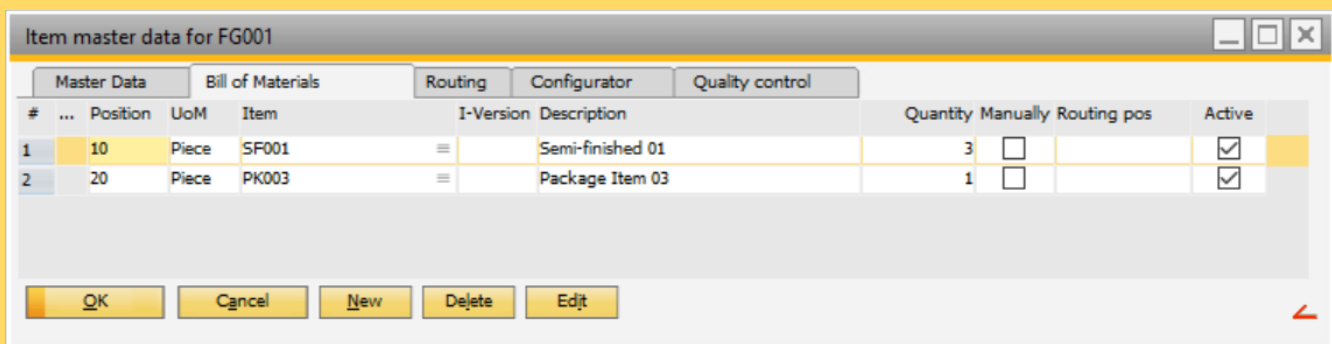
In the Item Structure Report, it is possible to view the bill of materials linked to each item as well as the planned quantities and Units of Measure.

By double clicking on any bill of materials' positions, a new screen is opened with the details from the position.



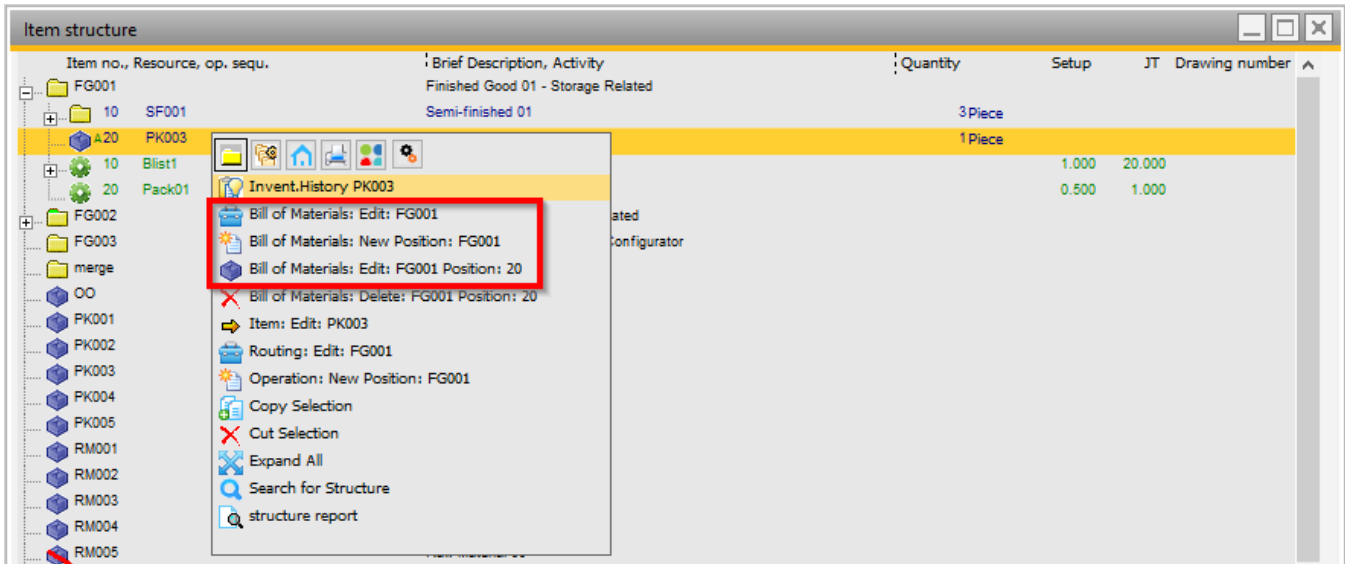
TIP: At the *Bill of Materials* tab, the user can view relevant information of the bill of materials' position related to the item master data selected. It is also possible to:

- Check the current bill of materials for the item
- Add new bill of materials' positions
- Change existing positions
- Delete positions
- Change the positions' sorting and numbers



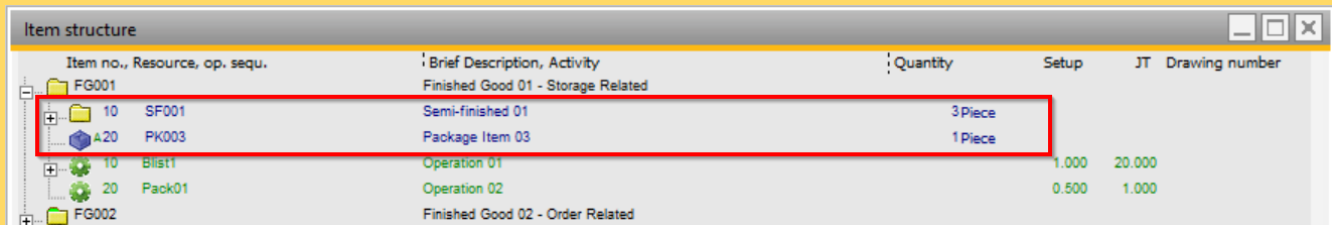
It is possible to view more information from the bill of materials screen; the user can activate more columns in the *Window settings*. To access the window setting, just right click on an empty part of the window and select *Window Settings*.

PATH: Inventory > Item Structure > Right click and select *bill of materials:edit* (for existing bill of materials) or select *bill of materials:New* (for new bill of materials).

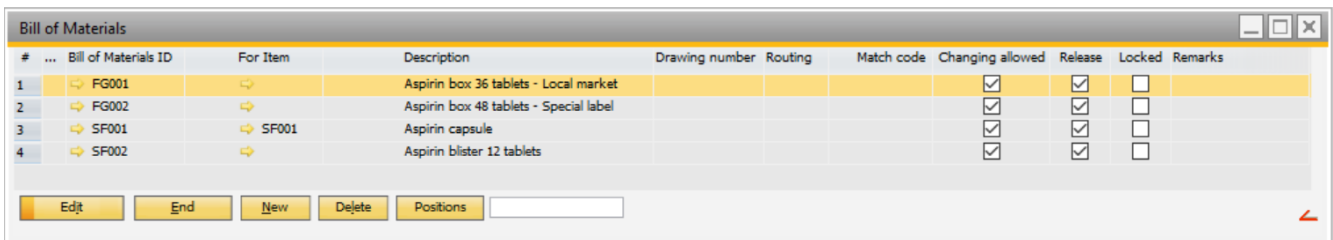


TIP: If the user only wants to display the item structure with the bill of materials linked to the item, the user may expand the item. In this screen, it is possible to view:

- Quantities per finished good
- Subassemblies (if applicable)



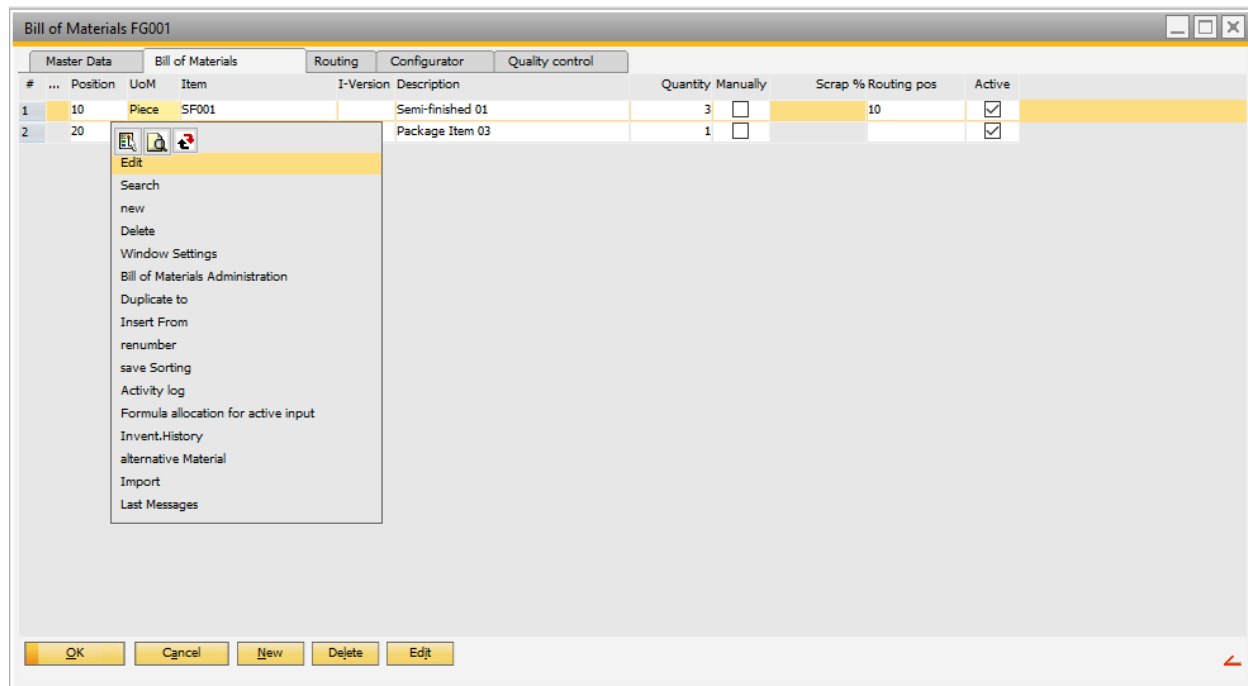
ALTERNATIVE PATH: Inventory > Bill of Materials > Click on *New* to create a new bill of materials (this is mostly used for version control). For more information, please refer to *Version Control:Setup* and *Version Control:Usage* tutorials.



TIP: This will open the bill of materials master data. In this screen, it is possible to:

- Edit existing bill of materials
- Create new bill of materials (which is particularly useful when working with version control)
- Delete bill of material positions

There are many options available in the buttons and right click menu that are meant to make it easy when changes have to be made in the bill of materials. In this section we will explore the most commonly used options. For more information about these options, please refer to *Item Structure Functions* tutorial.

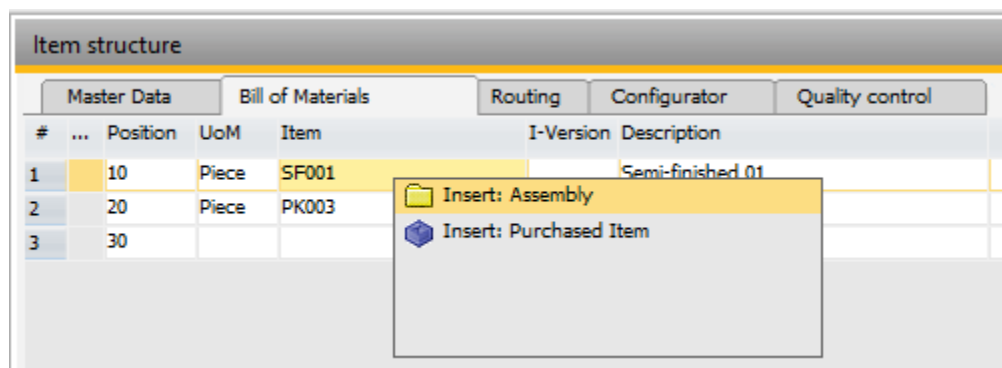


Delete Position: Option used to delete a position. This can be done in single and multiple ways. For single deletion, the user can select the line to be deleted and click the *Delete* button, or right click on the line and select *Delete*.

Reorder Positions: Option used to reorder positions. To reorder the bill of materials' lines, the user can select the line to reorder and move it to the desired position by clicking and holding the position number.

Renumber: Option used to renumber positions. After sorting the lines, right click on the position numbers and select *renumber* for beas to recalculate the positions' numbers.

To create a new bill of materials position in the *Bill of Materials* tab in the item master data, just click on the *New* button. Bill of materials positions will be created without any content. In order to add content to this row, it is mandatory to start selecting the item type in the *Item* column. The material can be selected by right clicking on the *Item* column, choosing whether the material is a purchased or assembly item, and selecting it from the list. After selecting the material, beas will automatically fill some fields such as description.

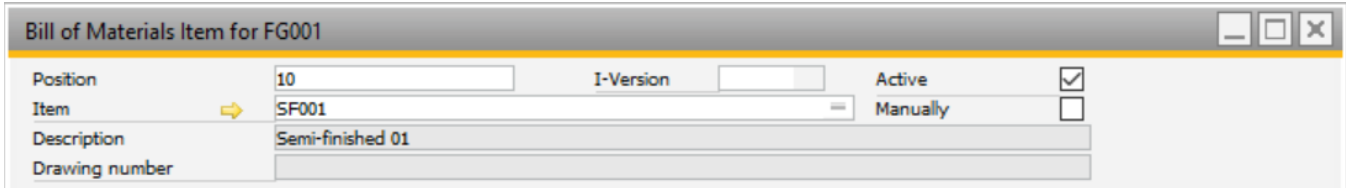


The field can be edited directly in the bill of materials line or by editing the bill of materials position in a new screen by double clicking the line, selecting the line and clicking on the *Edit* button, or right clicking on the line and selecting *Edit*.

In the bill of materials position screen, it is possible to insert additional information that is not available by default, by directly editing in the bill of materials tab in Item Master Data.

2.1. Header

In the header area of the screen, the user can find general information of the bill of materials position:



The screenshot shows a window titled "Bill of Materials Item for FG001". It contains the following fields:

Position	10	I-Version		Active	<input checked="" type="checkbox"/>
Item	SF001			Manually	<input type="checkbox"/>
Description	Semi-finished 01				
Drawing number					

Position: Field used to sort in the bill of material tab from the item master data. It is a consecutive number, but not a primary key.

Item: Field used to store the item number of a material, an assembly, or a phantom assembly.

Description: Field used to give the bill of materials position a short description.

Active: Field used to enable or disable the material position. If the field is checked, the material position is active for beas processes. If the material is no longer used in the bill of materials, the field should be unchecked.

2.2. General tab

The following tab includes fields related to the manufacturing process:

Bill of Materials Item for FG001

Position: 10 I-Version: Active

Item: SF001 Manually

Description: Semi-finished 01

Drawing number:

General Extended

Quantity: 3 Piece Per: 1.0000 Piece

Fixed quantity surcharge: Piece

Scrap %:

Rounding type: No rounding Rounding dec.: 0

Routing-position: Warehouse: SM

Length: 0.000 UDF1:

Width / OD: 0.000 UDF2:

Height / ID: 0.000 UDF3:

UDF4:

Info:

Additional text:

OK Cancel New Delete

Quantity: Field used to input the raw material quantity necessary.

Unit of Measure: Field used when the position uses a different unit of measure than the standard definition. When changing the raw material's unit of measure, a new field called *Factor* will appear.

Per: Field used to input the number of finished products produced with the quantity of materials required. This field can be set to a specific value to be automatically included by default. This can be done in the Configuration Wizard.

Example: If 100 units of a raw material are required to produce 20 units of finished product, the fields will be filled as follows:

- *Quantity* = 100
- *Per* = 20

When creating a work order for 30 units of finished product, beas will calculate a requirement of 150 units of raw material.

Rounding type: Field used to set a rounding method for each bill of materials position. This field can be defined as follows:

- *No Rounding* – for no rounding at the calculated units
- *Rounding at .5* – for rounding the first or second decimal in intervals of .5
- *Rounding Up* – for rounding the defined decimal up to the next decimal or integer number, according to the definition at *Rounding dec.* field
- *Multiple of* – for rounding always at values in multiples to the value defined by *Multiple of*

Routing-position: Field used to link a material to a routing position, for use in the specific production operation. Here, the user selects the routing position in which the material should be used.

Warehouse: Field used to set a warehouse where the material position should be used. In case this field is not changed, then beas will always select the material's standard warehouse. Additionally, it is possible to set specific measures for this component in the fields *Length*, *Width / OD*, and *Height / ID*.

2.3. Extended tab

Bill of Materials Item for FG001

Position: 10 I-Version: Active

Item: SF001 Manually

Description: Semi-finished 01

Drawing number:

General Extended

Area of validity

Date From: Date To: I-Version From: I-Version To: I-Version Range:

Breakdown always Piece

Issue remains from qty: Only Reservation Booking: Don't post scrap: Planning method: Automatically Picture: Color: Synchronization: Yes

OK Cancel New Delete

Breakdown: Field used to determine whether beas should automatically create a production position for this subassembly or not. There are 3 options available:

- *No* - beas will never create a production position for the subassembly inside the work order of the finished product, and the production of the subassembly should be created manually or using MRP.
- *Always* - beas will always create a production position for the subassembly, even if there is enough stock for it or not.
- *Only Shortage* - beas will only create a production position for the subassembly if there is not enough stock.

IMPORTANT: This field is only visible if the selected component is a storage related subassembly.

Planning method: Field used to consider this material in the MRP execution. If the user does not want to consider it in the MRP, the value must be in "No". By default, it uses the value "Automatically" that will apply the definition from the material's master data.

Synchronization: Field used to set the behavior of the *Data Integration Hub*. There are three options available:

- Yes – will make the Data Integration Hub delete and recreate this position when importing bill of materials positions for the finished product that it is related to
- *Not Delete* - prevents the Data Integration Hub from deleting this position, but not from updating the position data
- *No* - will prevent the Data Integration Hub from deleting or updating this position

IMPORTANT: The recommended setting for *Synchronization* is the standard option "Yes".

3. SPECIAL CASES

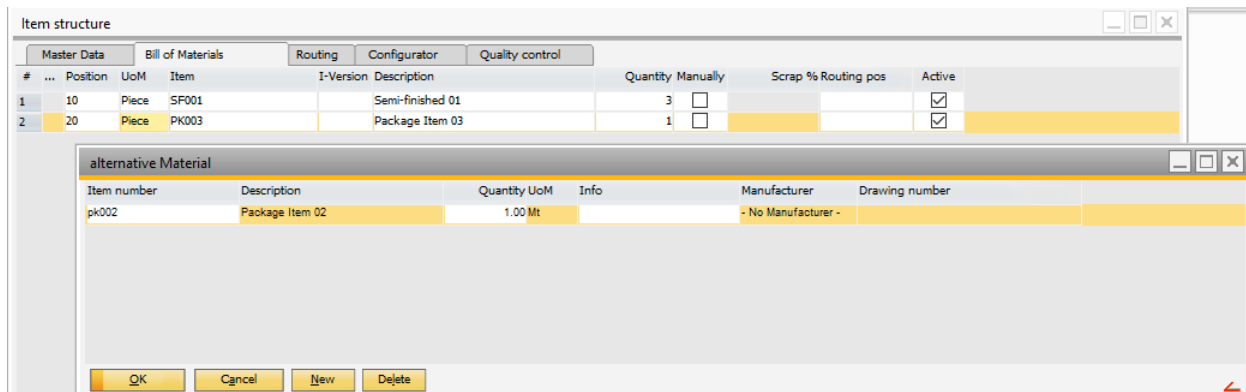
In this section, we will talk about setting up alternative items. An alternative item is where the user can define that instead of consuming one item A, two items B can be used.

If there are alternative items, these are displayed in the item structure with the replacement icon.

IMPORTANT: Item version is not supported when using alternative items.

After setting up the bill of materials positions, it is possible to include alternative materials for each bill of materials position. In beas, multiple alternative items can be set up for the same bill of materials position.

PATH: Item master data > Bill of Materials tab > right click on a bill of materials position in the fields *Position* or *Quantity*, and click on *Alternative Material*



To include an alternative item, please follow the steps:

1. Click New to add new alternative material lines.

Item master data for FG001

Master Data | Bill of Materials | Routing | Configurator | Quality control

#	...	Position	UoM	Item	I-Version	Description	Quantity	Manually	Routing pos	Active
1		10	Piece	SF001	=	Semi-finished 01	3	<input type="checkbox"/>		<input checked="" type="checkbox"/>
2		20	Piece	PK003	=	Package Item 03	1	<input type="checkbox"/>		<input checked="" type="checkbox"/>

alternative Material

Item number	Description	Quantity	UoM	Info	Manufacturer	Drawing number
RM005	Raw Material 05	1.0000	ml		- No Manufacturer -	

Update Cancel **New** Delete

OK Cancel New Delete Edit

- After adding a new line, the user can right click on the Item number field to select an alternative component.

alternative Material

Item	Description
PK003	Package Item 03
PK004	Package Item 04
PK005	Package Item 05

Update Cancel **New** Delete

- Fill the required quantity.

alternative Material

Item number	Description	Quantity	UoM	Info	Manufacturer	Drawing number
RM005	Raw Material 05	1.0000	ml		- No Manufacturer -	
PK003	Package Item 03		Piece		- No Manufacturer -	

Update Cancel **New** Delete

- If needed, add comments in the *Info* field.

alternative Material

Item number	Description	Quantity	UoM	Info	Manufacturer	Drawing number
RM005	Raw Material 05	1.0000	ml		- No Manufacturer -	
PK003	Package Item 03		Piece		- No Manufacturer -	

Update Cancel **New** Delete

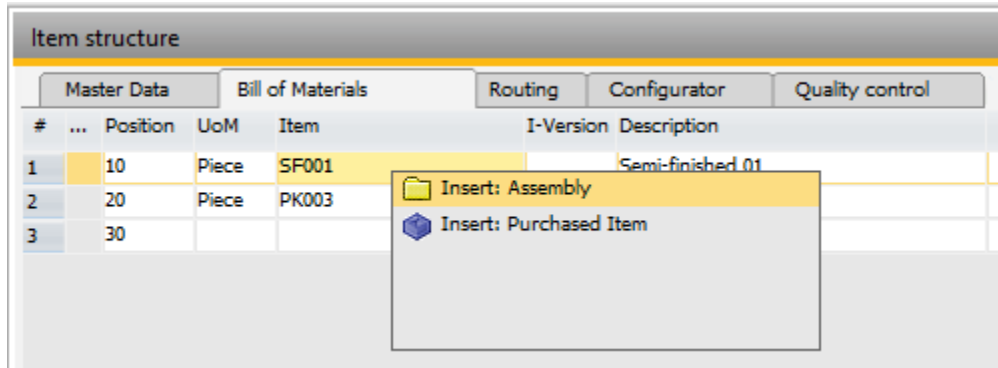
- Click on Update and Ok to close the screen.

Alternative materials can be selected directly from the work orders or from the MRP, after executing the calculations.

4. FIELDS GUIDE

To create a new bill of materials position in the *Bill of Materials* tab in the item master data, just click on the *New* button. Bill of materials positions will be created without any content. In order to add content to this row, it is mandatory to select the item type in the *Item* column. The material can be selected by right clicking on the *Item* column, choosing whether the material is a purchased or assembly item, and selecting it from the list. After selecting the material, fields will automatically fill some fields such as description.

PATH: Inventory > Item structure > Double click on the item the user wants to include in a bill of materials > Go to the *Bill of Materials* Tab > Click on *New* (for new bill of materials) or *Edit* (for existing bill of materials).

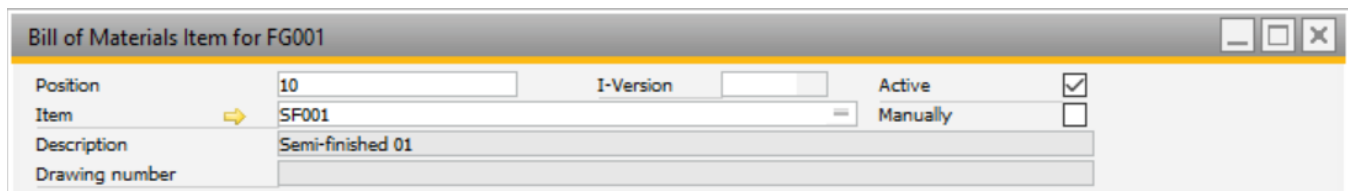


Field can be edited directly in the bill of materials line or by editing the bill of materials position in a new screen by double clicking on the line, selecting the line and clicking on the *Edit* button or right clicking on the line and selecting *Edit*.

In the bill of materials position screen, it is possible to insert additional information that is not available by default.

4.1. Header

In the header area of the screen, the user can find general information about the bill of materials position:



Position: Field used to sort in the bill of material. For more information, please refer to the field *Position* in the Process section of this document.

Item: Field used to store the item number of a material, an assembly, or a phantom assembly.

Description: Field used to give the bill of materials position a short description.

Drawing number: Field used to add the technical drawing number. This field cannot be changed because it automatically comes from the item selected (if applicable).

I-Version: Field used to select a version number. For more information, please refer to *Version Control: Setup* and *Version Control: Usage* tutorials.

Active: Field used to enable or disable the material position. For more information, please refer to the field *Active* in the Process section of this document.

Manually: When activating this field, the component's description can be changed specifically for this bill of materials position. Doing this will enable the two fields *Description* and *Drawing Number*.

4.2. General tab

The following tab includes fields related to the manufacturing process:

Bill of Materials Item for FG001

Position: 10 I-Version: Active:

Item: SF001 Manually:

Description: Semi-finished 01

Drawing number:

General Extended

Quantity: 3 Piece Per: 1.0000 Piece

Fixed quantity surcharge: Piece

Scrap %:

Rounding type: No rounding Rounding dec.: 0

Routing-position: Warehouse: SM

Length: 0.000 UDF1:

Width / OD: 0.000 UDF2:

Height / ID: 0.000 UDF3:

UDF4:

Info:

Additional text:

OK Cancel New Delete

Quantity: Field used to input the raw material quantity necessary.

Unit of Measure: Field used when the position uses a different unit of measure than the standard definition. For more information, please refer to the field *Unit of Measure* in the Process section of this document.

Factor: Field used to create a conversion factor between the new unit of measure and the standard unit of measure in the item master data.

General Extended

Quantity: 3.0000 Gr Per: 1.0000 Piece

Factor: 1.0000 Gr per Piece

Per: Field used to input the number of finished products produced with the quantity needed. For more information, please refer to the field *Per* in the Process section of this document.

Fixed Quantity Surcharge: Field used to define the quantity of raw material that will be issued each time this raw material is used within this bill of materials.

Scrap %: Field used to set a percentage of scrapped materials, that will also be issued each time this raw material is used within this bill of materials.

Rounding type: Field used to set a rounding method for each bill of materials position. For more information, please refer to the field *Rounding Type* in the Process section of this document.

Routing-position: Field used to link a material to a routing position, to be used in the specific production operation. For more information, please refer to the field *Routing-position* in the Process section of this document.

Length: Field used to set the length of a material.

Width / OD: Field used to set the width of a material.

Height / ID: Field used to set the height of a material.

Info: Field used to add more information about this material. This field is only for information.

Additional text: Field used to add more information about this material. This field is only for information.

Rounding dec.: Field used to set the amount of decimals for roundings.

Warehouse: Field used to set a warehouse where the material position should be used. For more information, please refer to the field *Warehouse* in the Process section of this document.

4.3. Extended tab

The screenshot shows a software window titled "Bill of Materials Item for FG001". The window has a "General" tab and an "Extended" tab, with the "Extended" tab selected and highlighted by a red rectangle. The "General" tab contains fields for "Position" (10), "I-Version", "Active" (checked), "Item" (SF001), "Manually" (unchecked), "Description" (Semi-finished 01), and "Drawing number". The "Extended" tab contains the following fields:

Field	Value
Area of validity	
Date From	
Date To	
I-Version From	
I-Version To	
I-Version Range	
Breakdown	always
Issue remains from qty	
Only Reservation Booking	<input type="checkbox"/>
Don't post scrap	<input type="checkbox"/>
Planning method	Automatically
Picture	
Color	
Synchronization	Yes

At the bottom of the window, there are buttons for "OK", "Cancel", "New", and "Delete".

Date From: Field used to define the start date of validity of the *I-Version*. For more information, please refer to *Version Control: Setup* and *Version Control: Usage* tutorials.

Date To: Field used to define the end date of validity of the *I-Version*. For more information, please refer to *Version Control: Setup* and *Version Control: Usage* tutorials.

I-Version From: Field used to select the first *I-Version* to be taken into account in a range. For more information, please refer to *Version Control: Setup* and *Version Control: Usage* tutorials.

I-Version To: Field used to select the last *I-Version* to be taken into account in a range. For more information, please refer to *Version Control: Setup* and *Version Control: Usage* tutorials.

I-Version Range: Field used to select the specific *I-Versions* to be taken into account. For more information, please refer to *Version Control: Setup* and *Version Control: Usage* tutorials.

Breakdown: Field used to determine whether beas should automatically create a production position for this subassembly or not. For more information, please refer to the field *Breakdown* in the Process section of this document.

Issue remains from qty: Field used to define the starting quantity for beas to automatically issue remaining quantities for the batch after the production process.

IMPORTANT: This field will be visible if the item is batch controlled.

Example:

- Need to consume 9.8 liters of a specific raw material
- The current stock = 10
- Issue remains from qty = 0.1

beas will automatically issue the remaining 0.2 liters.

IMPORTANT: This option is not recommended if the batches normally have their stock split amongst several different bin locations, since this could lead to problems.

Only Reservation Booking: Field used to only issue the reserved materials once this field is checked.

Don't Post Scrap: Field used to not consider scrap calculations for this bill of materials position. If this field is checked, beas will ignore all scrap definitions, fixed quantity surcharges and scrap rates.

Planning Method: Field used to consider this material in the MRP execution. For more information, please refer to the field *Planning Method* in the Process section of this document.

Picture: Field used to define an icon for the bill of materials.

Color: Field used to set a color font for the bill of materials.

Synchronization: Field used to set the behavior of the *Data Integration Hub*. For more information, please refer to the field *Position* in the Process section of this document.

5. CONFIGURATION WIZARD

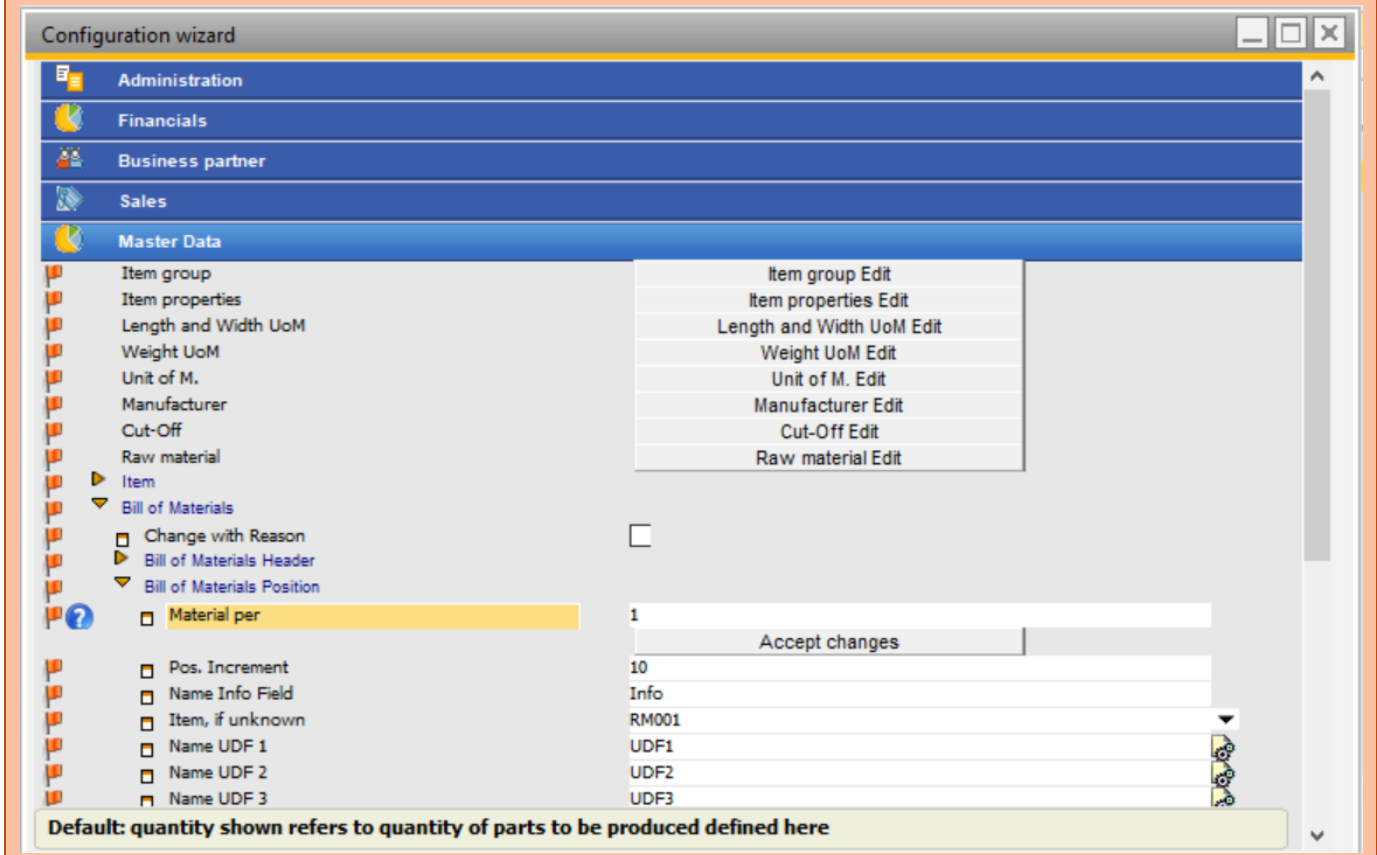
This section includes each configuration wizard setup and special parameters that involve fields or business scenarios from the bill of materials master data.

5.2. General Tab

Per

Configuration Wizard: When a bill of materials is created the quantity of the finished good in the field *Per* can be set to a value by default. By default, it is 1.

PATH: Master data > Bill of materials > BOM header and BOM position



Position Increment

Configuration Wizard: When the bill of materials is created, the position numbers are automatically generated. The increments are entered in this parameter. By default, it is 10.

PATH: Master Data > Routing > Pos. Increment

