



The BOM (Bills of Material) is the foundation of a manufacturing system. A BOM is a listing of all the subassemblies, parts and raw materials that go into making a parent assembly and shows the quantity of each required to make that assembly. It is used in conjunction with the production schedule to determine the items for which purchase orders and work orders must be released. A variety of BOMs are supported, including the single-level bill of material, the indented bill of material, the modular bill, the variable bill, the phantom bill, and the costed bill.

The following are components of the BOM module:

BOM Master

Here is where BOMs are composed, revisions are made, configurations are developed, and finished goods are defined. The most important thing to understand about BOMs is that there is a variety of BOMs supported, including the single-level bill of material, the indented bill of material, the modular bill, the variable bill, and the phantom bill.

BOM Master - MBBA01 Rev: 001

Header	Child	Config	SOC	Note	Image
Parent Item	MBBA01	Revision	001	Revision Note	No
Description	Bike Assy (to be configured)				
BOM Type	FG Type	Allocation	Route	Default Order Type	Active
Component	Configure	Start Qty	BIKE2	Build	01/01/2017
<input checked="" type="checkbox"/> Peg Exclusive <input type="checkbox"/> BOM Locked					Inactive
					//

Item MBBA01 Rev 001

- MBCH01 [1.0000 EACH] Chain Assy
 - MBLU01 [0.0010 LB] Lubricant, Moly Grease
- MBPD01 [2.0000 EACH] Pedal Assembly
- MBRE01 [1.0000 EACH] How Many Reflectors?- Red Stick On
- MBSP01 [1.0000 EACH] Seat Post
 - MBTT01 [2.0000 EACH] Tire Tube
- MBWH01 [2.0000 EACH] Wheel Assembly
- MBXH01 [1.0000 EACH] Handlebar Phantom Assy
- MBYB01 [1.0000 EACH] What Brake Assy ?
- MBYD01 [1.0000 EACH] What Derailleur (Shifter) ?
- MBYE01 [1.0000 EACH] Men's or Woman's Frame ?

Exit Save F9 Del Bwd Get F8 Fwd Add F7 Rev Export Update

A BOM may be up to 25 levels deep. The parent BOM supports revisions with active/inactive dates as does each component on the bill, which allows components to be smoothly substituted or replaced.

If your company relies heavily on bills of material for products with features and options, then modular bills could have a huge impact on the management of those bills and the costs associated with them. Here is why. A standard BOM consists of a parent item and a list of components to make one of an item. So if you are making bicycles and those bicycles come in ten different colors, then you have to build and maintain ten separate bills, one for each color. Now say that you offer boys and girls frames, five different styles (touring, mountain, etc.), four different tires, six derailleurs, and three lighting options. That would come to $10 \times 2 \times 5 \times 4 \times 6 \times 3$, or 7,200 unique bills that would have to be built, entered and maintained. The creation and management of that number of bills is expensive and error prone.

A modular bill consists of the parent item and a list of choices instead of components. So instead of ten bills to cover the color choices, you would have one bill that has a component that looks like a subassembly. But instead of a list of components in the subassembly, you have a list of color choices. Whenever the bill for the bike is included on a work order, it asks you which color to use. The result is one bill structure that can be used to build any of the ten colors available for that bike. The same applies to the rest of the options. The net result is that one BOM, using modular bills, can be constructed to account for every permutation of that bicycle.

If you have bills of material for products that are essentially the same except for components that have a variable quantity, then variable bills can greatly reduce the number of part numbers and bills you must create and maintain. Like the modular bill, variable bills reduce costs and errors.

The result of using modular and variable bills is that one indented bill structure can be used to configure many, even thousands, of possible finished goods. These bill types form the foundation for a sales order configurator that is part of ALERE.

Dismantle Item

The *Dismantle Item* function allows components of a BOM to be returned to inventory from a sales order line item, sales

Dismantle Item

Dismantle Type: BOM Level: Components Post Date: 02/12/2018

Order	Line	Item	Rev	BOM Date	Quantity	Child Location
		MBBR01	001	10/01/2017	1.000	LOC1

List of Components

Sel	Quantity	Item	Description
<input type="checkbox"/>	1.0000	MBBR03	Brake Cable-Front
<input type="checkbox"/>	1.0000	MBBR04	Brake Cable-Rear
<input type="checkbox"/>	2.0000	MBBR06	Brake Handle-Racing
<input type="checkbox"/>	4.0000	MBBR08	Brake Caliper
<input type="checkbox"/>	1.0000	MBBR09	Brake Mounting Assy W/hdwe.

Exit All None Refresh Post

return line item, work order item, or a BOM. Most commonly this occurs when a product is returned to your company and the desire is to salvage the useable parts. Similarly, the item being returned may be a kit where no disassembly is required but the parts still need to be “de-kitted” and placed back in inventory. The need to disassemble may extend to manufacturing work orders when a partially completed job is stopped due to a cancelled order or for any number of other reasons. Inventory overstock or discontinued product may also be the cause for the need to disassemble. ALERE Manufacturing can quickly handle all of these situations.

Another major implication of disassembly has to do with supporting different types of businesses. Traditionally, we think of manufacturing as producing a product from a number of parts. But industries such as wood products, petroleum, sawmilling, major chemicals, paper and pulp, dairy and meat, electronics, rubber, and others start with one raw material and “explode” into a wide range of end-products, co-products and by-products using what is called an “inverted bill of material”. ALERE supports this type of bill and permits these types of processes.

Material Orders

A material order provides a simplified work order function. It works best in a light duty manufacturing environment where there is little or no assembly, and there are limited requirements for tracking costs. Its purpose is to allocate and issue components to a job and then post finished goods to inventory.

Jobs that require only back flush of the materials used may be created as a material order and then processed quickly without having to post transactions. Conversely, jobs that require labor postings, scheduling, ID lot/serial tracking, etc. should be created as work orders.

The material order function is automatically active when the BOM Module is present without the Order Module. Conversely, it is inactive when the Order module is present, although it can be optionally activated so both work orders and material orders can be used simultaneously. ALERE achieves a considerable level of flexibility by allowing the processing of work orders and material orders concurrently.

BOM Mass Replace

Performing a mass replace allows a component part to be superseded by another component part in all or in a selected number of BOM's where it is used. The part being replaced is not being deleted! The old part is assigned an inactive date the day before the new part becomes active. In this way the revision history of parts is maintained.

Replace

Item: MBBR04 Brake Cable-Rear Active: 01/22/2018

With

Item: MBBR02 Brake Assy-Regular ECO:

Where Used List

Sel	BOM	Rev	Description	Code
<input checked="" type="checkbox"/>	MBBR01	002	Brake Assy-Racing	C
<input checked="" type="checkbox"/>	MBBR02	001	Brake Assy-Regular	C
<input type="checkbox"/>				

Exit All None Note Replace

Delete BOM Orphans

It is sometimes possible for children to be left unattached to a bill when a parent part number is removed from the BOM file. The children are called "Orphans". This utility searches the BOM file for orphans and deletes them.

Delete Material Orders

This utility applies only when the BOM is being used as a stand-alone module. When a material order is marked completed, the BOM module ignores its records in future calculations. These records can then be deleted but they also be left for reporting purposes.

Import BOMs

The *Import BOMs* function allows BOMs to be constructed in Excel. Both Excel 2007 (.xls) and 2010 (.xlsx) formats are recognized and import into ALERE. This has the advantage of allowing the proposed BOMs to be reviewed and approved before their creation in ALERE. In the case that numbers of similar BOMs are required, using Excel may offer a significant savings in time, as any number of BOMs can be imported from one file.

Export BOMs

The *Export BOMs* function allows existing BOMs to be exported to Excel. This has the advantage of allowing a current BOM to be used as the basis of a new BOM before their import and creation in ALERE. Using Excel in this manner may offer a significant savings in time, as any number of BOMs can be created in this manner.

BOM Reports

A wide range of reports are readily available. There are process reports that include pick lists and material order.

There are control reports that list BOM types, can cost one or more BOMs, that will list finished good configurations, print indented BOMs, will roll up the lead time required for a BOM, run a check on material availability, can perform MRP planning, do net trial requirements, and even compare BOM revisions and BOMs and work orders for differences.

There are also activity reports to list dismantled items, show BOM revision history, research what BOMs an item is used in, display a log of updates, perform analytics on the usage of options, and finally execute "where used" searches.

All these reports may be viewed on a screen, printed, exported to a spreadsheet, or turned into a PDF file for distribution.