

## MANUFACTURING

ENOVIA X-BOM Manufacturing



ENOVIA® X-BOM Manufacturing provides a Manufacturing Bill-of-Material (MBOM) management solution complimenting ENOVIA® Engineering Central™, which manages Engineering Bills-of-Material (EBOMs) and related engineering documentation. The combined solution supports a seamless flow of product development and manufacturing data and processes in support of a global business strategy.

### Key Benefits

- Decrease time from design release to manufacturing readiness by implementing a solution that enables concurrent design and manufacturing planning BOM activities
- Reduce manufacturing costs by identifying and resolving manufacturability issues early in the development process
- Reduce errors and decrease time associated with the implementation of engineering changes across several manufacturing locations
- Improve quality and reduce scrap and rework by ensuring that "design intent" is followed across multiple manufacturing locations through the management of a "common BOM" for engineering and manufacturing

## Product Overview

Economic and competitive pressures are causing companies to quickly adopt a global design and manufacturing business strategy. In many industries, the trend is to create “virtual” manufacturing capabilities with almost all production manufacturing outsourced. Companies need an enterprise Product Lifecycle Management (PLM) solution that can enforce common design intent while providing needed flexibility at the plant level to account for the dynamics of the production process including material and supplier constraints.

ENOVIA X-BOM Manufacturing creates a competitive advantage by addressing key business challenges including:

- Enabling product and manufacturing engineers to work concurrently to detect and correct problems before release
- Managing EBOMS and MBOMS and change information in a common tool to ensure data integrity and access to real time product changes, anywhere they occur
- Centrally managing manufacturing planning activities without sacrificing the flexibility of plants to make local decisions

## Product Highlights

When ENOVIA X-BOM Manufacturing is implemented with ENOVIA® Engineering Central™ it enables the consolidated management of all engineering and manufacturing BOM data and processes in one enterprise solution. Key features and capabilities of ENOVIA X-BOM Manufacturing are:

### **MBOM Management**

ENOVIA X-BOM Manufacturing provides the ability for companies to plan and authorize the use of alternate or substitute parts on a plant specific basis. This includes setting plant preferences from a manufacturing view of the EBOM known as a “common view.” These plant preferences / authorizations are evaluated when generating a plant specific MBOM. The result is an optimization of centralized control / authorization of parts for use in manufacturing plants while enabling local changes / manufacturing decisions as required.

ENOVIA X-BOM Manufacturing makes it easy to create and maintain MBOMs. An initial MBOM is created automatically when it is released from the engineering common view. The manufacturing engineer has the flexibility to perform the following MBOM tasks:

- Assign the effectivity of manufacturing change orders and associated parts on a plant by plant basis
- Re-structure the MBOM to indicate manufacturing sequence and phantom part creation and maintenance
- Select from pre-defined and authorized manufacturing options such as alternate or substitute parts
- Create or insert plant specific manufacturing parts as required or allowed
- Set a “make or buy” flag on any part in the MBOM to indicate to an Enterprise Resource Planning (ERP) system whether an item is procured from a supplier or an internal plant, or if the item is made internally

## MBOM Navigation

Users can browse all or selected levels of the MBOM structure. A number of filters are provided to allow the manufacturing engineer to see the information of interest. These filters include:

- The “Plant Filter” presents a plant specific MBOM view
- The “Effectivity Filter” allows users to select combinations of current, historical or pending BOM changes or select a specific “effective” date to filter the view

## Reporting

### *Where Used Report:*

The “Where Used” report provides component usage information to determine the impact of a proposed change at any level in the product structure.

### *BOM Comparison Report:*

The BOM Comparison report displays detailed comparison information regarding part or quantity differences of any two EBOMS or MBOMs. Comparing an EBOM to an MBOM for the same part shows differences in the BOM structure as a result of reorganizing the EBOM items for manufacturing use (grouping parts as phantom parts or adding manufacturing specific parts such as raw materials or tooling). The basis for the comparison is part numbers, finding numbers, or reference designators.

## Manufacturing Change Processes

ENOVIA X-BOM Manufacturing provides tools to formalize, document, and control the manufacturing change process for newly released and existing products in production. Manufacturing Change Orders (MCOs) are created automatically when releasing a new design or changing an existing design on an Engineering Change Order (ECO). The ECO keeps engineering synchronized with manufacturing.

For released designs, an ECO or Manufacturing Engineering Change Order (MECO) process can be used to make “global manufacturing only” changes such as:

- adding or removing alternate or substitute parts
- changing plant preferences or authorizations

Users can implement MECOs in parallel to engineering changes since a “manufacturing only” change does not affect the product engineering definition nor revises the affected engineering parts. A MECO release generates one or more MCOs to implement the manufacturing changes.

Manufacturing engineers can create an MCO for each plant affected by an engineering or manufacturing change. Create MCOs at the plant level to facilitate “local” manufacturing changes such as phantom part restructuring or make/buy decisions.

ENOVIA X-BOM Manufacturing supports the request, approval, and implementation of manufacturing deviations. A manufacturing deviation process temporarily authorizes and tracks an unapproved engineering change at one or more manufacturing plants. An example of a deviation use case is a local plant running out of an engineering authorized part and using an unauthorized part instead.

## The Role of ENOVIA V6 and PLM 2.0

ENOVIA X-BOM Manufacturing supports PLM 2.0, product lifecycle management online for everyone, and the ENOVIA V6 values: global collaboration innovation, single PLM platform for intellectual property (IP) management, online creation and collaboration, ready to use PLM business processes, and lower cost of ownership.



## Delivering Best-in-Class Products



Virtual Product



Information Intelligence



3D Design



Virtual Planet



Realistic Simulation



Dashboard Intelligence



Digital Manufacturing



Social Innovation



Collaborative Innovation



3D Communication

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