

Infor LN User Guide for Unit Effectivity

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About this document

This document provides an introduction to unit effectivity and explains the setup, cost calculation, and usage of effectivity units across LN.

Document summary

This document contains the following chapters:

- **Chapter 1, Unit effectivity concept**
  Describes the components that are part of unit effectivity.
- **Chapter 2, Master data for unit effectivity**
  Describes the data that you must set up for unit effectivity.
- **Chapter 3, Calculating standard cost for units**
  Describes standard cost calculation in unit effectivity.
- **Chapters 4 through 8**
  Describe the use of unit effectivity in various Infor LN packages.

How to read this document

This document was assembled from online Help topics. As a result, references to other sections are presented as shown in the following example:

For details, refer to *Unit effectivity concept*. To locate the referred section, please refer to the Table of Contents or use the Index at the end of the document.

Underlined terms indicate a link to a glossary definition. If you view this document online, you can click the underlined term to go to the glossary definition at the end of the document .

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Chapter 1
Unit effectivity concept

1

Unit effectivity

You can use unit effectivity to engineer exceptions or as a simple configurator (light product configurator).

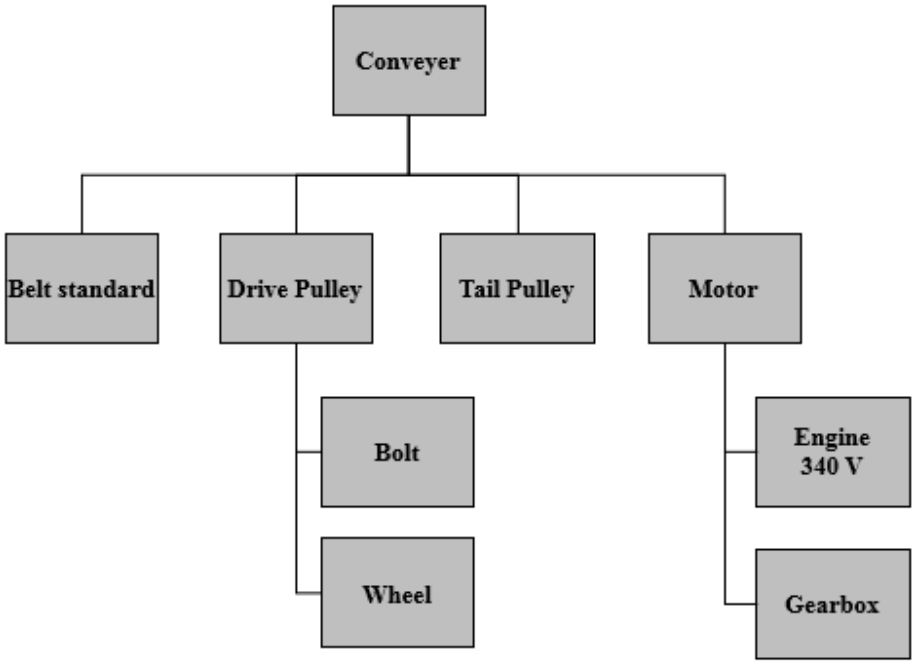
Engineering of exceptions

In most situations, one standard product configuration exists for a product. In this context, a configuration is the total set of data related to the product, which includes the BOM, routing, routing operations, and so on. This standard configuration is planned and sold to customers, without changing the configuration.

However, many companies sell products in slightly different configurations. For all the various products, the same item code is used. If you define a separate item code for all configurations, too many items and related data must be stored.

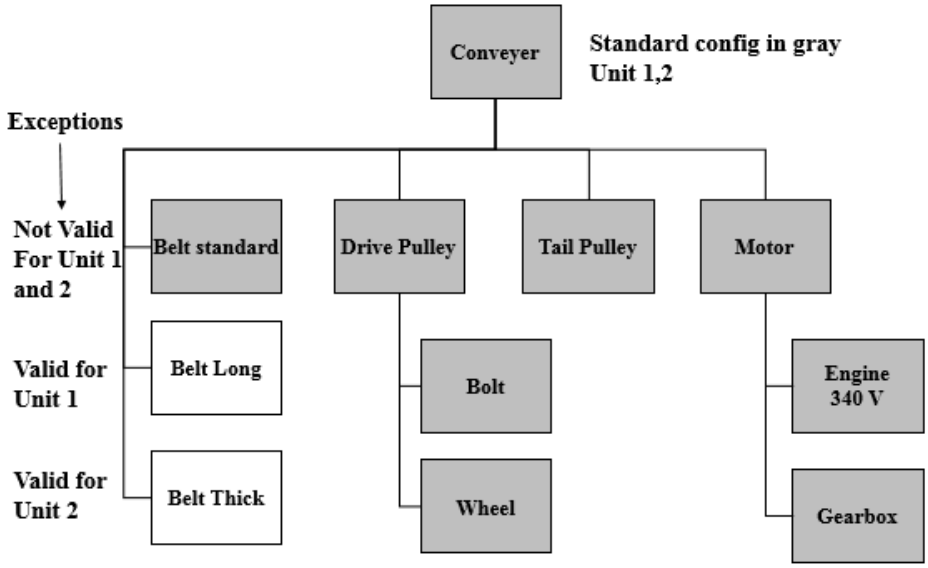
In LN, you can use unit effectivity to define exceptions to the standard configuration without the need to define separate items. To define exceptions of the standard configuration, units are used. Every unit represents a separate configuration of the same item. The unit indicates differences in product structure, routing, or other data.

The following example illustrates the standard product structure of a conveyer belt:



If a customer purchases the standard configuration of the conveyer, you must enter an effectivity unit of 0 (zero) on the sales order line. Some customers, however, require an extra thick belt. Others want to have a different length. For those exceptions, units are defined in LN.

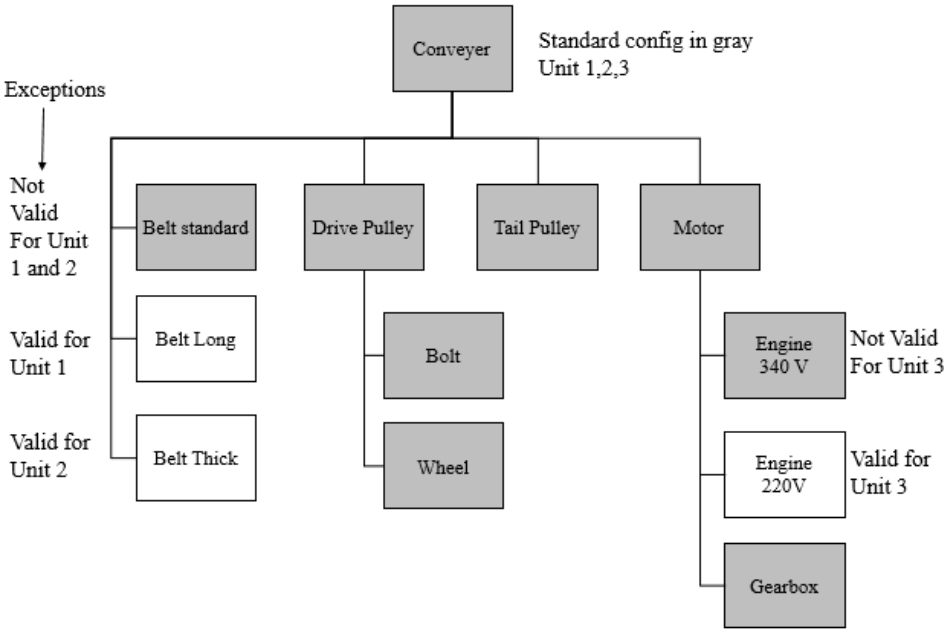
For example, unit 1 represents a product structure for the conveyer with a long belt. Unit 2 is the conveyer that consists of a thick belt. You can specify configurations on the BOM line by means of exceptions.



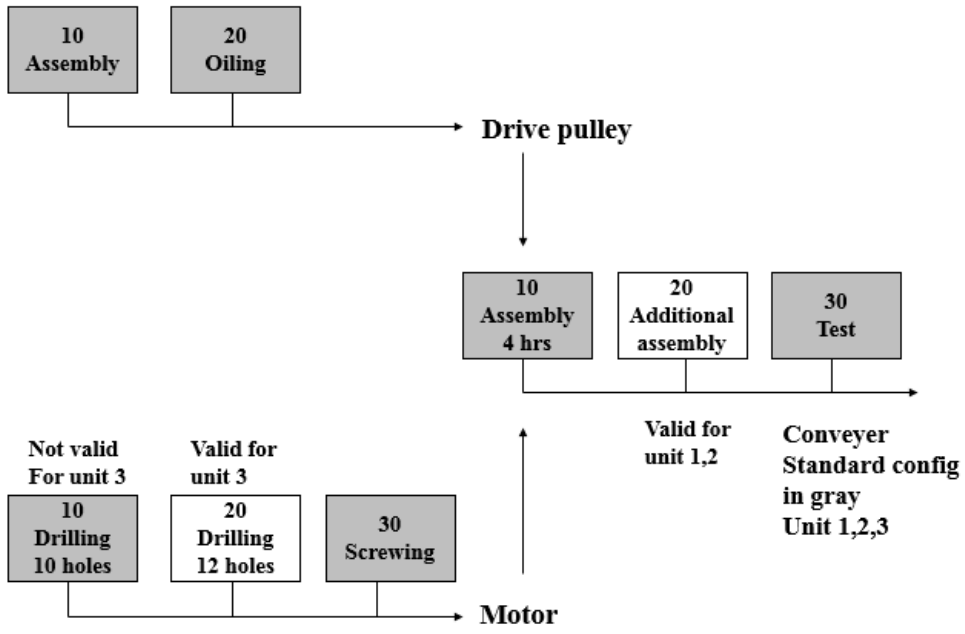
In the example, exceptions are linked to the BOM lines of the conveyer. The BOM lines are therefore, unit effective. Other unit effective entities include, for example, routings and routing operations.

The definition of exceptions is not only restricted to data directly related to the top-level item. An exception represented by unit 1 or 2 can be linked to any unit effective entity. As a result, unit effectivity works multilevel.

In the following example, unit 3 is defined to specify a configuration with a 220V engine. Unit 3 is linked to a component on a lower BOM level:



In the same way as described for BOM lines, you can link exceptions to routings, routing operations, and other entities. In the following example, an additional operation is added to the routing of the conveyer for units 1 and 2. If a motor for one of those units is manufactured, one of the operations is replaced by another operation. In case of unit 3, 12 holes must be drilled instead of 10 holes.



At some places in LN, you can enter a unit that must be planned, produced, and purchased. You can specify a unit on a sales order line, production order, and purchase order line. The unit is taken into account during the MRP explosion in Enterprise Planning. A sales order for a unit can result in a purchase order for that unit, even if the unit-effective item is on a lower level in the product structure.

Requirements

An exception is a statement that determines if the entity for which the exception is defined, for example, a BOM line, is valid or not valid for a specific unit. However, a unit-effective entity such as a BOM line and an operation can be valid or invalid for many units. As a result, multiple exceptions must be defined. The number of exceptions can be huge in situations in which many units exist for the end item. For that reason, requirements are introduced. A requirement is a collection of units, for which an exception can be defined. Therefore, rather than define and link multiple exceptions for every unit separately, you can create a requirement consisting of all units, and define only one exception for that unit.

The term requirement is used because all units that are combined together are introduced for the same requirement.

In the example, you can define the following (customer) requirements:

- LB: Long Belt
- TB: Thick belt
- 220: 220V engine.

Now, in the example, you define exceptions for requirements, rather than define exceptions for units.

The units in the example are linked to the requirements as follows:

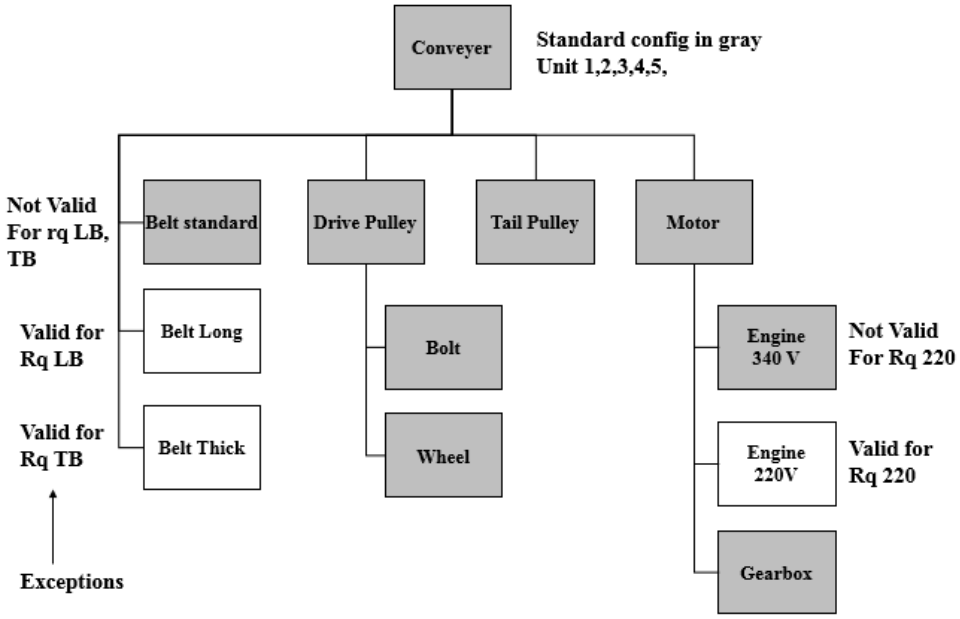
Requirement	Units
LB	1
TB	2
220	3

Next, you must define unit 4. Unit 4 represents the requirements Long Belt and 220V. Unit 5 represents the requirements Thick Belt and 220V.

The following table lists all units:

Requirement	Units
LB	1,4
TB	2,5
220	3,4,5

In the following figure, the requirements are linked to the BOM lines:



Light product configurator

You can use unit effectivity as a very simple configurator. In some situations, the PCF configurator in Manufacturing is too extensive to use: generic items, features, options, and constraints must be introduced, which requires a lot of work.

If the PCF product configurator is used, a unique number is generated for every configuration. This number is called the product variant.

To use unit effectivity as a configurator, you must select the **Generate Effectivity Unit during Demand Entry** check box in the Unit Effectivity Parameters (tcuef0100s000) session. If you now enter a sales order line for a unit-effective item, LN generates a new unit. The unit number identifies the configuration in LN. From the sales order line, you can start the configuration process for the generated unit. This configuration process contains the selection of relevant requirements for the item.

Example

Suppose you use unit effectivity as a configurator in the previous example. In that case, you must enter the unit-effective conveyer on the sales order line. A new effectivity unit is generated, for example, 15. After that, you must select the requirements for unit 15.

At the start of the configuration, no requirements are linked to the unit yet:

Item: conveyer

Unit 15

Requirement	Description
-	-
-	-

During the configuration process, you can select units. You can also retrieve a list of default requirements: the requirements that are most often used. After that, you can adjust the default list.

At the end of the configuration process, the requirements are selected:

Item: conveyer

Unit 15

Requirement	Description
LB	Long Belt
220	220 V

The result of the linking process is that unit 15 belongs to requirements LB and 220.

The following table presents an overview of all units that are linked to the requirements, including the previous example:

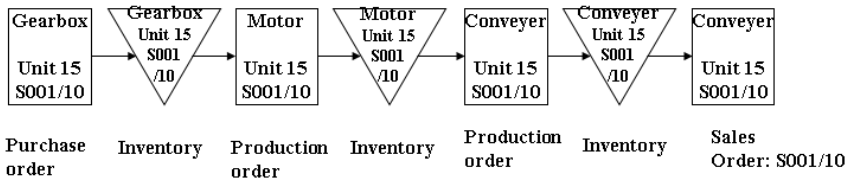
Requirement	Units
LB	1,4,15
TB	2,5
220	3,4,5,15

Because the unit is linked to a requirement, all exceptions that are applicable to the requirement are applicable to the unit that was generated. As a result, the correct BOM lines and operations are selected.

Pegging

Unit effectivity provides multilevel pegging functionality. On the sales order line with a unit effective item, you can generate a unit number that is unique to the sales order line. The description of the unit consists of the sales order number and sales order line position. MRP explodes the unit to all levels underneath the item of the sales order line. You can view this unit at all levels in inventory. The unit is stored for production, warehouse, purchase, and service orders. As a result, at all levels, and at many places, a peg exists to the sales order.

The following figure illustrates the pegging concept:



You can view a pegging report. The report displays all orders that are related to a specific unit.

Interchangeability

Inventory for various units of the same item can be interchangeable. MRP explodes the top-level unit to lower levels of the BOM structure. Without interchangeability, you can use only inventory of the requested unit. In the previous example, unit 15 would then be requested at all levels below the conveyer. You can, however, determine interchangeability between items and units.

Suppose that in the previous example item units of the item MOTOR are interchangeable. At the requirement date of MOTOR, unit 15 is not available. However, another unit, unit 16, is available. Instead of unit 15, you can use unit 16 because the units of item MOTOR are interchangeable.

MRP automatically uses interchangeable units if the required units are not in place, and redundant inventory of interchangeable unit exists.

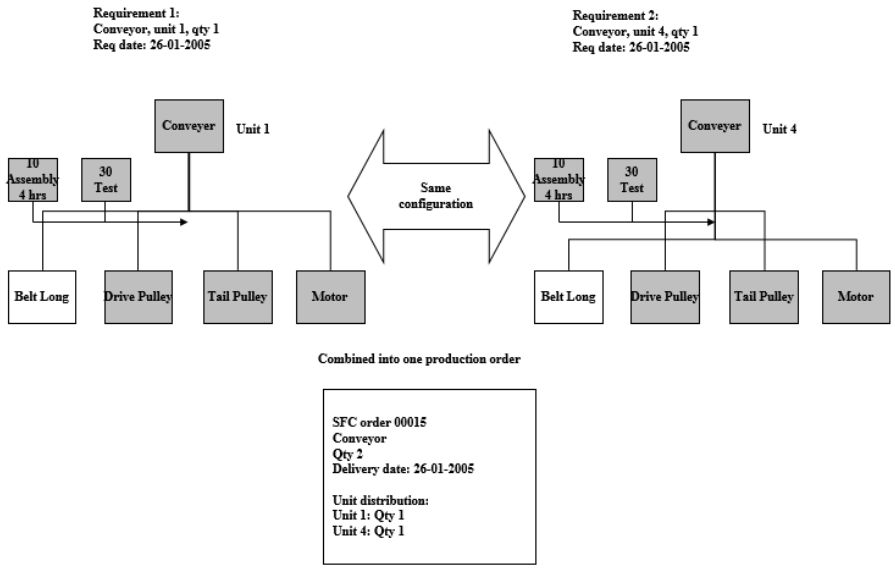
Interchangeability is also used in warehousing. If a required unit is not available, the interchangeability settings are used to check if a different unit can be used.

Sameness

Some levels of product structures are the same for different units. In the previous example, the BOM and routing of the conveyer belt are the same for unit 1 and 4. As a result, unit 1 and 4 of the conveyer can be combined into one production order. For example, a production order with quantity 2 can consist of one item for unit 1 and one item for unit 4.

MRP checks the sameness of units during explosion. If the BOM and routing of an item are the same for different units, and if requirements exist for those units, MRP combines those units, and generates one order with multiple order lines for different units. Note that standard MRP logic, for example, a specific order interval, or a maximum order quantity, is also taken into account to generate the order.

For a production order, you can view all units in the order distribution. You can start the order distribution from the production order header.



Standard cost calculation

For every item, you can calculate a standard cost by unit. You can calculate a standard cost as soon as a unit exists for the item. As a result, you can calculate the standard cost at an early stage. If you use the unit effectivity concept as product configurator, you can also calculate the standard cost when the unit is generated.

The standard cost is provided for information purposes, and cannot be used as standard cost. The standard costs for units are not used in estimated cost- price calculations in JSC and PCS.

Chapter 2
Master data for unit effectivity

2

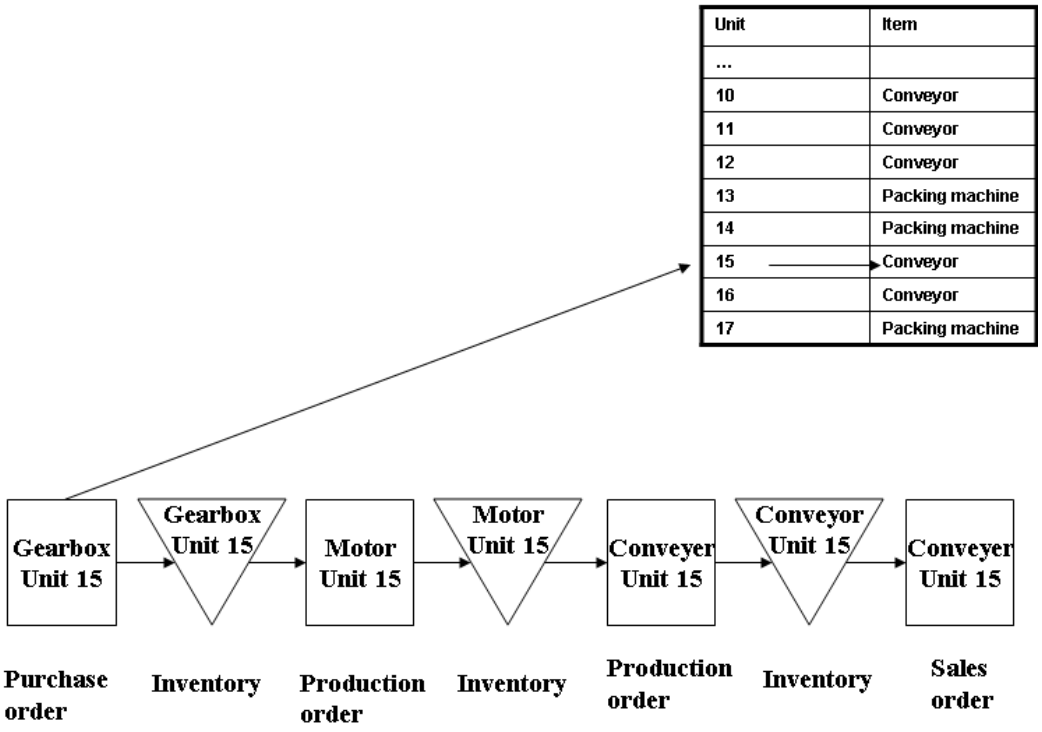
Master data for unit effectivity

Unit effective item

An effectivity unit exists only in combination with an item and does not exist independently. The items for which units are generated are called unit effective items. Usually, the unit effective item is the top-level item of a multi-level structure for which a sales order is created. However, end items do not have to be unit effective. If, for example, you create a sales order or production order for an item, you can enter an effectivity unit even if the item is not unit effective, or even if the unit belongs to a different unit effective item. In this way, selling spare parts or subassemblies for a specific configuration is supported.

If multiple unit effective end items exist, you can use the connection between unit and end item to trace easily for which top-level item an activity is performed upstream in the production process.

Suppose that a conveyor belt is a unit effective end item, and unit 15 is defined for the conveyor. In that situation, a user can trace back lower level purchase orders and production orders to that specific conveyor. Refer to the following figure:



To define an item as unit effective, in the Items (tcibd0501m000) details session, on the **Unit Effectivity** tab, select the **Unit Effective End Item** check box.

Effectivity series

Units are unique numbers generated by LN. These numbers do not make any sense to users. Instead, users want to have codes that make sense to them. Therefore, before the unit is generated, users can enter an identification code for each occurrence of an item. This code consists of a series code and a sequence number. To define multiple sequence numbers simultaneously, you can simply enter the first sequence number and the last sequence number that you want to define. For every sequence number in combination with the series code, LN generates a unique unit code.

For example, you can generate 20 sequence numbers for the AGR (agricultural) series. You can perform this process in the Items - Effectivity Series (tcuef0101m000) session.

Units

After you define the first and the last sequence number of the series, LN generates the units for every sequence number of the series. Start the Items - Effectivity Series (tcuef0101m000) session, and on the appropriate menu, click **Generate Effectivity Units**.

LN generates a unit for every sequence number.

Standard configuration and exceptions

For many entities in LN, you can determine whether the entities belong to the standard configuration, or whether the entities are only valid for a specific unit.

You must define on the entity, for example, the BOM line, whether the entity belongs to the standard configuration or to a specific unit. A so-called exception, which is related to the entity, is used to define whether that entity is valid or not for a specific unit. LN uses the following logic to verify if an entity is valid, that is effective or selected, for a specific entity:

If one of the following statements is true, an entity is *valid* for a unit:

- The entity belongs to the standard configuration.
- The entity does not belong to the standard configuration, but the entity is valid for the specified unit.

If one of the following is true, an entity is *invalid* for a unit:

- The entity does not belong to the standard configuration.
- The entity belongs to the standard configuration but the entity is invalid for the specified unit.

In other words, if an entity belongs to the standard configuration, the entity is valid for all units unless an exception specifies that the entity is invalid for a unit. If an entity does not belong to the standard configuration, the entity is invalid for a all units, unless an exception specifies that the entity is valid for a specific unit.

For example, you can define that two BOM lines of the conveyor, BELT LONG and BELT THICK, belong to specific units. Those BOM lines do not belong to the standard configuration. The other BOM lines of the conveyor belong to the standard configuration.

Exceptions enable you to specify whether entities are valid or invalid for specific units. To define exceptions, you must use the Exceptions (tcuef0105m000) session, which you can start from the sessions in which unit effective entities are defined, for example, the Bill of Material (tibom1110m000) session and the Routing Operations (tirou1102m000) session.

In the example, the conveyor component BELT LONG is valid for unit 9584. You specify this in an exception for that BOM line. To start the Exceptions (tcuef0105m000) session, click **Exceptions** in the Bill of Material (tibom1110m000) session.

The Exceptions (tcuef0105m000) session already contains the BOM line data. You must only specify for which unit the BOM line is valid or invalid. In the example, you specify that the BOM is valid for unit 9584:

After you define exceptions for a unit effective entity, you can exclude the entity, in this case, the BOM line, from the standard configuration by clearing the **Standard Configuration** check box in the Bill of Material (tibom1110m000) session.

If the entity does not have any exceptions, you cannot specify whether or not an entity belongs to the standard configuration. If no exceptions are linked, and you can clear the **Standard Configuration** check box, the entity is valid neither for the standard configuration nor for an effectivity unit.

For example, if BELT STANDARD is part of the standard configuration, but that item must be invalid for unit 9584 and 9585, you can specify this by exceptions.

Requirements

You can define the validity of entities at requirement level. In the exceptions, you can define for which requirement an entity is valid or invalid.

You define requirements in the Requirements (tcuef0106m000) session.

For every requirement, you define the related effectivity units in the Requirement - Effectivity Units (tcuef0107m000) session.

Linking effectivity units to requirements is useful if you want to define an exception for multiple effectivity units simultaneously. If, for example, an exception is required in the BOM of item conveyor, you can define the exception for a specific requirement, after which the exception is valid for all effectivity units linked to the requirement. In this way, you do not need to define the exception for every effectivity unit separately.

In the example, the long belt, a BOM component of the conveyor, is valid for requirement LB. If you define this in an exception, the BOM line is automatically valid for unit 9584 and 9587.

You cannot refer both to a requirement and a unit in one exception. You can define an exception at requirement level or at unit level.

Group requirements

In the Item - Requirements (tcuef0108m000) session, you can group requirements by linking them to a specific entity or entity combination. The following entities can be used to group requirements:

- Sold-to business partner
- Ship-to country
- Ship-from warehouse
- End item

You can use grouped requirements during sales order entry. If you enter a sales order for a specific sold-to business partner, ship-to country, ship-from warehouse, end item, or combination of entities, you can start the Item - Requirements (tcuef0108m000) session from the Effectivity Unit (tcuef0102m000) session to find the applicable requirements. If required, however, you can still select requirements that are not defined in the Item - Requirements (tcuef0108m000) session.

Default requirements

In the Item - Requirements (tcuef0108m000) session, you can also define requirements as defaults. If you enter a sales order, and multiple sets of requirements apply to the sales order, LN retrieves only the default requirements.

For example, you define a number of requirements for a specific end item, of which some of the requirements are defaults. You also define some default requirements for a specific sold-to business

partner. If you create a sales order for this specific end item and sold-to business partner, LN retrieves only the default requirements.

Setting up interchangeability

You can set up interchangeability at various levels:

- Company level
- Item level
- Series level

Company level

If the **All Effectivity Units are Interchangeable** check box is selected in the Unit Effectivity Parameters (tcuef0100s000) session, all units in a specific company are interchangeable. This setting overrules all other interchangeability settings at lower levels.

Item level

If the **Effectivity Units are Interchangeable** check box is selected in the Items (tcibd0501m000) details session, all units of a specific item are interchangeable. This setting overrules interchangeability settings at series level.

Series level

The most detailed level at which you can define interchangeability is the series level. At series level, you can select the following check boxes:

- If the **Interchangeable in Series** check box is selected in the Items - Effectivity Series (tcuef0101m000) session, all units in the series specified in the **Unit Series** field are interchangeable.
- If the **Interchangeable with other Interchangeable Series** check box is selected in the Items - Effectivity Series (tcuef0101m000) session, the units of the series specified in the **Unit Series** field are interchangeable with the units of any other series of the same item for which the **Interchangeable with other Interchangeable Series** check box is selected.
- If the **Interchangeable with Standard Configuration and vice versa** check box is selected in the Items - Effectivity Series (tcuef0101m000) session, the units of the series that is specified in the **Unit Series** field are interchangeable with the standard configuration. Technically speaking, the standard configuration is unit 0 (zero).

The **All Effectivity Units are Interchangeable** check box and the **End Item is Interchangeable** check box in the Items - Effectivity Series (tcuef0101m000) session display the settings you made on company level or item level. If one of those check boxes is selected, you cannot select the other check box.

Configuring units

You can configure units in the Effectivity Unit (tcuef0102m000) session. In this session, you can carry out the following processes:

- Link requirements
- Calculate standard costs by unit
- Link sales characteristics
- Define process variables

You usually configure units on sales order lines. You can, however, configure every unit in LN.

Sales prices

You can specify an upgrade price for every requirement. Based on the selected requirements for an effectivity unit, LN adds the upgrade prices to the sales price, which can result in a different sales price for every effectivity unit. The final sales price that is displayed on the sales order line includes the requirements' upgrade prices.

You must define unit upgrade prices in the Requirements (tcuef0106m000) session.

Chapter 3
Calculating standard cost for units

3

Calculating standard costs for units

You can calculate the standard cost of an effectivity unit in these sessions:

- Print Multilevel Cost Calculation (ticpr2420m000)
- Effectivity Unit (tcuef0102m000), on the **Prices** tab

Print Multilevel Cost Calculation (ticpr2420m000)

You can use the Print Multilevel Cost Calculation (ticpr2420m000) session to calculate and print the standard costs by unit. The standard cost structure is printed in LN and is not saved.

Effectivity Unit (tcuef0102m000)

You can also calculate and view the standard cost in the Effectivity Unit (tcuef0102m000) session, on the **Prices** tab. To calculate the unit's estimated standard cost, click Calculate Estimated Cost. No multilevel calculation is printed, and the standard cost is not used in other sessions. The standard cost can be used for sales margin control.

LN does not calculate the estimated costs in JSC by unit.

Chapter 4
Units in Sales

4

Units in Sales

Introduction

On the sales order line, you can use effectivity units. Usually, you enter a predefined unit, in which case a specific occurrence of a product is entered.

You can also generate a unit at sales order entry. In that case, unit effectivity is used as a configurator and is used for pegging.

Standard usage of unit effectivity

To use unit effectivity in Sales in a standard way, you must clear the **Generate Effectivity Unit during Demand Entry** check box in the Unit Effectivity Parameters (tcuef0100s000) session.

In the Sales Order Lines (tdsls4101m000) session, you can now enter an effectivity unit of an item that has been sold. If desired, you can zoom from the **Effectivity Unit** field to a predefined unit.

Unit effectivity as configurator

The functionality in Unit Effectivity (UEF) can be used as a configurator. In this scenario, an existing or new unit is configured. To change the requirements of the unit, you can click **Requirements** in the Sales Order Lines (tdsls4101m000) session.

If you do not select an existing unit on the sales order line, a new unit is generated when you click **Requirements**. LN displays a message that asks you whether you are sure that an effectivity unit must be generated. If you click **Yes**, the new unit number is generated, and the Effectivity Unit (tcuef0102m000) session starts to configure the effectivity unit. You can also start this session later by clicking **Requirements** on the sales order line.

LN can also automatically generate a new unit for a unit effective end item directly after you enter a unit effective item on a sales order line. In that case, the **Generate Effectivity Unit during Demand Entry**

check box must be selected in the Unit Effectivity Parameters (tcuef0100s000) session. The description of a generated effectivity unit consists of the sales order code and the sales order line number.

If you defined default requirements in the Item - Requirements (tcuef0108m000) session for the end item, sold-to business partner, ship-to country, and/or ship-from warehouse, these requirements are retrieved.

You can view the unit that is entered or generated on the sales order line in the Effectivity Units (tcuef0502m000) session.

The series that is used for the effectivity unit number is retrieved from the Unit Effectivity Parameters (tcuef0100s000) session.

You can run the following processes from the Effectivity Unit (tcuef0102m000) session:

- Link requirements
- Calculate standard costs by unit
- Define sales characteristics
- Define process variables

These processes are described in the following sections.

Link requirements

To configure in Unit Effectivity (UEF), you must assign a unit to requirements. To do so, add requirements in the Effectivity Unit (tcuef0102m000) session, the session that you can start from the sales order line.

To assign additional requirements to an effectivity unit, click New on the tab. You can also remove requirements. To re-import the predefined, default set of requirements, on the appropriate menu of the Requirement - Effectivity Units tab, click **(Re-)Import Requirements**.

You can define a default set of requirements in the Item - Requirements (tcuef0108m000) session.

Exclusive indicators

During the configuration process, you can use exclusive indicators. To use exclusive indicators, select the **Exclusive Indicator** check box for the appropriate requirements in the Requirements (tcuef0106m000) session.

Exclusive indicators prevent requirements that conflict with other requirements to be selected at the same time. You cannot select multiple requirements for one unit that has the same exclusive indicator. In the example, you must prevent that a long belt and a thick belt are selected at the same time. For that reason, you must define the same exclusive indicator (BELT) for both requirements in the Requirements (tcuef0106m000) session. If you try to select requirement TB (thick belt) while requirement LB (long belt) is already selected, LN displays a message.

Calculate standard costs by unit

To calculate a unit’s estimated costs, select the **Prices** tab in the header of the Effectivity Unit (tcuef0102m000) session, and click **Calculate Estimated Cost**. LN displays the costs in the session,

and stores the costs for the effectivity unit. The sales price is also displayed, which makes the session important for margin control.

Process variables

A process variable is a setting or an input value related to a machine, tool, or to process quality that is relevant to carry out an operation or operation step. Examples of process variables are cutting depth, cutting speed, and so on. For a process variable, you can define a target value, an upper control limit, and a lower control limit. This type of information can vary by unit.

In the lower part of the Effectivity Unit (tcuef0102m000) session, on the Effectivity Unit - Process Variables tab, you can define process variables for an effectivity unit. Click New to start the Effectivity Unit - Process Variables (tirou1114m000) session where you can enter process variables for the effectivity unit.

If you define default process variables at item level in the Default Process Variables by Item (tirou1115m000) session, you can import the process variables for a specific effectivity unit by clicking **Import Process Variables** on the appropriate menu of the Effectivity Unit - Process Variables (tirou1114m000) session.

You can also define process variables for a specific operation or operation step in Infor LN Manufacturing. This information is part of the production order. If, in the Effectivity Unit - Process Variables (tirou1114m000) session, you define a value for a process variable that differs from the value that is defined on the operation for the same process variable, in the production orders, LN uses the values defined in the Effectivity Unit - Process Variables (tirou1114m000) session, which overrule the process variables defined for operations.

Sales characteristics

In the header of the Effectivity Unit (tcuef0102m000) session, you can view and maintain the following sales characteristics for an effectivity unit on the **Sales Characteristics** tab:

- Sold-to business partner
- Ship-to country
- Ship-from warehouse

When you generate a new, unique unit number on a sales order line, LN automatically displays the sales characteristics on the **Sales Characteristics** tab. The sales characteristics originate from the sales order line. Because of the link between the sales characteristics and the effectivity unit, you can view the sales characteristics everywhere in LN through the effectivity unit.

If you select a predefined effectivity unit on the sales order line, and you start the Requirement - Effectivity Units (tcuef0107m000) session from the sales order line, you can select sales characteristics on the **Sales Characteristics** tab. If you click **(Re-)Import Requirements**, sales characteristics are retrieved from the sales order line.

On the **Sales Characteristics** tab, you can click **Calculate Upgrade Price** to calculate the total upgrade price of the effectivity unit.

Freeze the configuration

After you create the configuration, you can freeze the configuration. You can no longer add or delete requirements in the Requirement - Effectivity Units (tcuef0107m000) session. To freeze the configuration, on the **Effectivity Unit** tab in the Effectivity Unit (tcuef0102m000) session, you must select the **Configuration Ready** check box .

Unit effectivity and pegging

You can use an effectivity unit as a means for pegging a specific item to the sales order.

You can use unit effectivity for pegging if the **Generate Effectivity Unit during Demand Entry** check box is selected in the Unit Effectivity Parameters (tcuef0100s000) session.

When the sales order line is created, LN automatically generates a new unit. Note that every sales order must have a different unit.

With unit effectivity, you can combine the pegging scenario with the configurator functionality. If you use the pegging functionality, you can still click **Requirements** in the Sales Order Lines (tdsls4101m000) session.

Quotations

You can use effectivity units on quotations in the same way as on sales orders.

Chapter 5
Units in Enterprise Planning

5

Units in Enterprise Planning

Explode units

Order planning in Enterprise Planning explodes the effectivity units through the multilevel product structure. During the explosion, Enterprise Planning takes into account the exceptions that are defined at routing level and BOM line level.

LN communicates unit information to lower levels of the product structure. Demand for a unit of the top-level item generates supply for that specific unit. This supply creates demand for the unit one level lower in the structure.

However, exploding the unit information to all levels and items in the structure is not mandatory. For many items, you do not need to know which top-level unit generated the demand. You can use the **Unit Effective Supply** check box in the Items (tcibd0501m000) details session to determine whether unit information is communicated to supply orders (planned purchase and production orders, distribution orders) of the item.

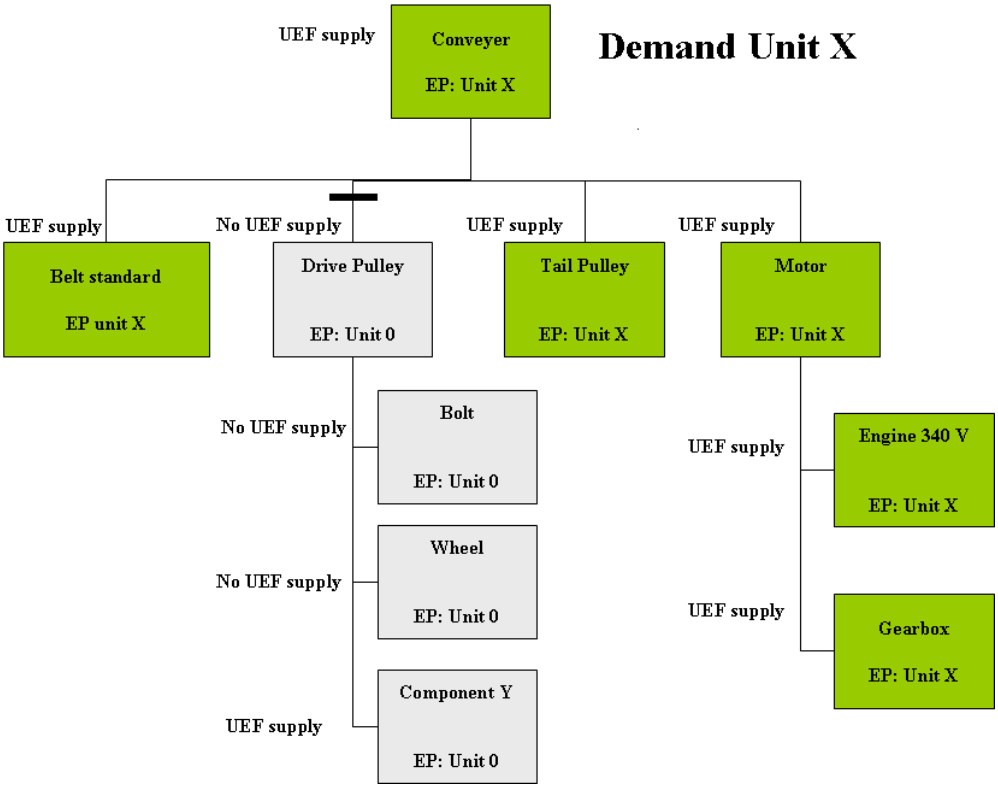
If you clear the **Unit Effective Supply** check box, the unit information is not used for the item's supply orders. This prevents the generation of multiple supply lines in the item order plan, for which unit information is not relevant.

The setting of the **Unit Effective Supply** check box also depends on the **Lot Controlled** check box in the Items (tcibd0501m000) details session. For more information, refer to *Units in Warehousing (p. 35)*.

In the example, the only manufactured item without unit effective supply is the drive pulley. The other manufactured items have unit effective supply.

The following figure illustrates how a unit is exploded in Enterprise Planning. In this figure, demand exists for unit X. For every level, the figure shows which items in the structure have planned orders that contain the unit. Because the drive pulley has no unit effective supply, the planned orders of the drive pulley do not contain unit X. Although demand exists for unit X, supply is not generated for a specific unit. Instead, LN uses unit 0 (zero), which represents the standard configuration. Because the supply for the drive pulley is for unit 0, the demand for the bolt is also for unit 0.

If the **Unit Effective Supply** check box is selected for the drive pulley's component, the demand for the component would still be unit 0 (zero). The explosion of the top-level unit ends at the drive pulley.



If you enter two sales orders, the unit numbers appear in the demand lines in the item order plan for the conveyor belt.

A top-down planning run is carried out for the conveyor. For every demand line, a separate planned production order line is generated, one for every unit. Although the two planned production orders have the same delivery date, the orders are not combined due to the orders' differing effectivity units

At the level of the item order plan of MOTOR, a unit effective supply is again generated.

The Planned Order - Inventory Movements (cprrp0511m000) session shows the planned inventory movements of the effectivity unit of the planned production order.

For the drive pulley, the **Unit Effective Supply** check box in the Items (tcibd0501m000) details session is cleared. As a result, in the item order plan, no unit effective supply is generated for the unit effective demand. In the session, the supply of 2 is displayed for unit 0, which is the standard configuration. The supply for the parent item, conveyor, is unit effective, which results in a demand that is also unit effective.

Same configuration

The planning system checks whether a configuration is the same for multiple units. If the configurations of effectivity units for a specific item differ, separated production orders are generated. If the BOM and

routing are the same, the configuration is considered the same. If the configuration is the same, the units can be combined in one production order, if permitted, according to other planning rules, such as order interval. A combined order consists of multiple lines.

For example, suppose you create two sales orders with lines for various units of a conveyor and two of these units have the same configuration. If you generate the planned orders, the item order plan for the conveyor has a planned production order with separate lines for the two units.

Interchangeability

Suppose a demand exists for a unit that is interchangeable with another unit. If no inventory is present of the requested unit, but inventory exists of the other unit, the planning system consumes the other unit's stock instead of creating supply for the requested unit.

Exceptions by sourcing strategy

To determine the sourcing strategy by unit or by requirement, you can define exceptions in the Exceptions (tcuef0105m000) session, which you can start from the appropriate menu of the Sourcing Strategy (cprpd7110m000) session. For example, in case of unit 10, the demand for the motor must be purchased. A demand for unit 11 must be produced. You can even define that, for example, 75 percent of the supply for a specific unit must be produced, and 25 percent of the unit must be purchased.

Exceptions by item - purchase business partner

Enterprise Planning uses exceptions that are defined in the Items - Purchase Business Partner (tdipu0110m000) session. To determine a supplier by unit or requirement, you can define exceptions for every item - supplier combination. If, for example, you create a purchase order for the conveyor's gearbox, supplier A must supply unit 20. If the purchase order concerns unit 21, Supplier B must supply the order.

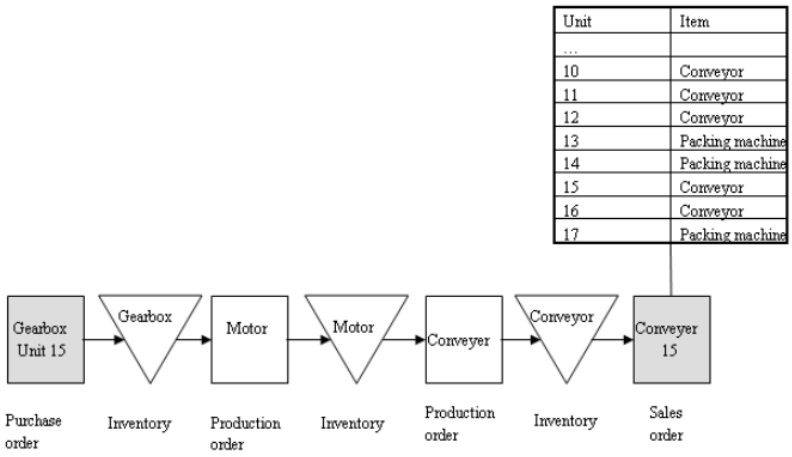
Chapter 6
Units in Procurement

6

Units in Procurement

You can specify a unit on the purchase order line. Because the item on the purchase order line can be used in any end item, and every end item can have units, you can enter any unit on a purchase order line. Note that the item on the purchase order line does not need to be a unit effective end item, that is, an item for which units are defined in the Effectivity Units (tcuef0502m000) session.

In the following figure, unit 15 is defined for the conveyor. On the purchase order line of the gearbox, you can define unit 15, although unit 15 belongs to a different item.



Enterprise Planning can also provide the unit information on the purchase orders. Planned orders in Enterprise Planning contain unit information if the **Unit Effective Supply** check box is selected in the Items (tcibd0501m000) details session. This unit information is then transferred to Procurement.

Example

In Enterprise Planning, an item order plan exists for the gearbox (based on the motor’s demand). One planned purchase order exists for two different units.

Transferring the order plan results in the purchase order and purchase order lines. The lines contain the effectivity units.

If the unit information is not relevant, you can decide to clear the **Unit Effective Supply** check box in the Items (tcibd0501m000) details session. Then, for both planning and purchase, just one line is created.

Chapter 7
Units in Warehousing

7

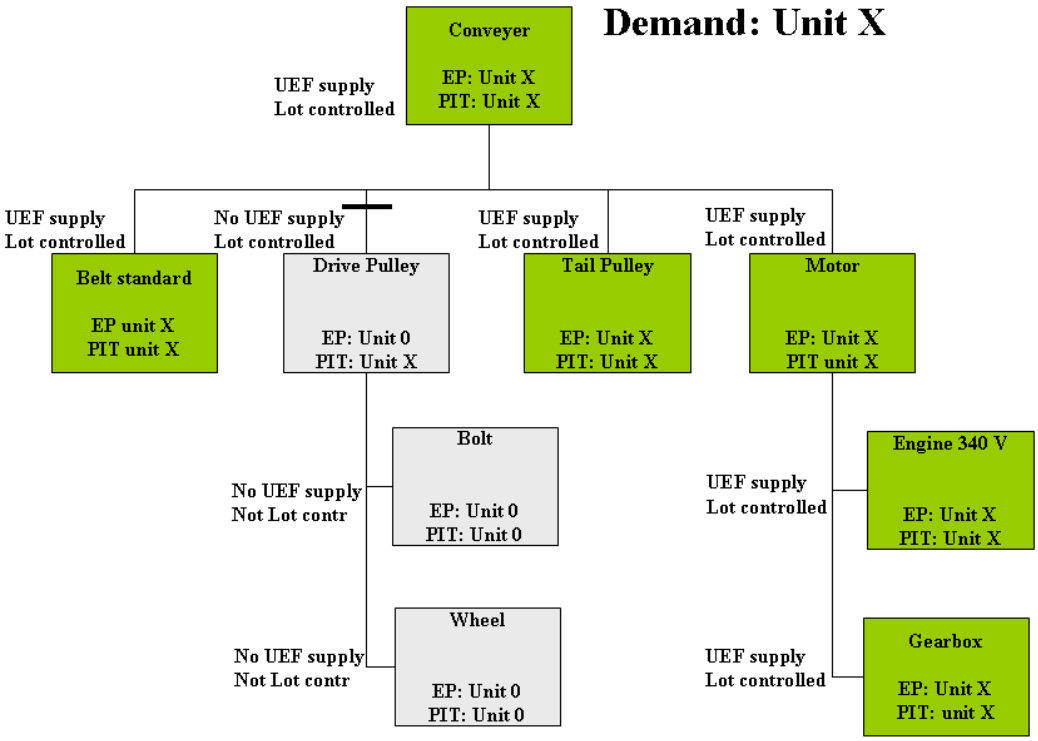
Units in Warehousing

An item's effectivity unit in inventory indicates the unit effective (end) item in which the item will be used. For example, if the item's unit is 15, the item will be used in a configuration of an item or end item with effectivity unit 15. The lot number is used to store unit information: the inventory is stored at lot level, and in the lot, the unit is recorded. As a result, you can only use effectivity units in inventory if an item is lot controlled. If the item is not lot controlled, the item is stored with unit 0 (zero) in inventory, even if a demand exists for a specific effectivity unit.

For items that are not lot controlled, unit information in planned supply is not required by Infor LN Enterprise Planning. If these items are stored in inventory, the unit information is lost. To prevent planned supply for items that are not lot controlled, you can only select the **Unit Effective Supply** check box in the Items (tcibd0501m000) details session if the **Lot Controlled** check box is also selected.

Units in planned inventory transactions

The planned orders that Infor LN Enterprise Planning generates are transferred to production orders and purchase orders. The unit information is also transferred. You can view the orders' units in the planned inventory transactions:



The demand in the planned inventory transactions (PIT) of the drive pulley contains unit information. If a requirement exists for a specific unit of a lot controlled item, the unit is stored in the corresponding lines in the PIT. If the planned production order for the conveyor is transferred to a production order, units specify the estimated materials. As a result, the requirements of the drive pulley contain unit information, which is recorded on the corresponding PIT lines of that lot-controlled item. The supply in the PIT is based on the drive pulley's production order. The units do not specify the production order because the **Unit Effective Supply** check box is not selected for the drive pulley. The corresponding PIT lines do not contain unit information.

As a result, lot controlled items for which the **Unit Effective End Item** check box in the Items (tcibd0501m000) details session is cleared can have demand lines in the PIT that contain unit information, whereas the supply lines in the PIT are not by unit.

This only works if the demand line's unit is interchangeable with the unit of the supply line, which is unit 0 (zero). Therefore, the **Effectivity Units are Interchangeable** check box in the Items (tcibd0501m000) details session is selected if the **Unit Effective Supply** check box is cleared.

Units in inventory

If you store an item in inventory, you can link the effectivity unit of the configuration of the item or end item in which you want to use the item. As a result, you can see for which units the inventory must be used. In the example, you can view the inventory of the item belt standard at unit level.

Note that you can link an effectivity unit to an item that is not unit effective itself. In the example, the units linked to the belt standard in inventory refer to the conveyor, the unit effective end item. The belt itself is not a unit effective item for which units are defined.

The lot number is used to store unit information: the inventory is stored at lot level, and in the lot, the unit number is recorded. In this way, LN can display the inventory at unit level. As a result, you can only store inventory at unit level if the item is lot controlled. If the item is not lot controlled, the item is stored with unit 0 (zero) although the demand is for a specific unit.

In the example, the drive pulley, the bolt, and the wheel are not lot controlled. As a result, specific units are not recorded in inventory for those items.

A production order for the conveyor issues a specific unit of the drive pulley. Since no unit is supplied from inventory, LN just supplies unit 0 (zero). LN checks whether the item is lot controlled. If that is the case, the outbound lines for the drive pulley in Warehousing have unit 0 (zero).

Inbound of units

If an item is lot controlled, you can receive the item at unit level. During the receipt, the unit is entered. You cannot enter the unit for items that are not lot controlled, because the stock of those items cannot contain units.

In the example, you will release purchase order WG2000003. The inbound lines of this order contain the unit information. After you release the purchase order, you can receive the belt standard that was ordered by the purchase order.

On the **Receipt Line** tab of the warehouse receipt, LN displays the unit. To display the warehouse receipt line details, start the Warehouse Receipt (whinh3512m000) session and double-click a receipt line.

On the **Item, Location** tab, you enter the lot number. To generate the lot number, click **Generate Lot**.

The other purchase line is received in the same way.

After both lines are received, you can view the unit information in inventory.

Outbound of units

You can also carry out the **Outbound Procedure** at effectivity unit level.

A production order, or another order type, for example, a sales order can request a unit. If no unit is requested, the outbound is carried out for unit 0 (zero). If you request a unit but the relevant item is not lot controlled, no unit information is stored at the outbound line, because no units are stored in inventory. The outbound procedure can only be carried out for a specific unit, if the item is lot controlled.

In the example, a production order was created for unit 9595 and 9596. The unit is filled in the outbound lines of the lot-controlled components. In the outbound lines of the component that is not lot controlled, no unit is filled.

The belt standard, the drive pulley, and the motor are lot controlled. Therefore, the supply lines in the PIT contain unit information. Consequently, the unit information is also stored on the outbound lines.

For every unit, a separate outbound line is generated. The tail pulley is not lot controlled so units do not determine the outbound for this item. Therefore, only one line, with quantity 2, is generated for the item. An outbound line of the belt standard contains the unit. The outbound line of the tail pulley does not contain a specific unit: unit 0 (zero) means "no unit."

If you release the outbound advice for the belt standard, the outbound advice contains the unit.

During the remainder of the issue procedure, you do not need to fill the unit manually.

Chapter 8
Units in Manufacturing

8

Units in Manufacturing

Master data

In Infor LN Manufacturing, you can define exceptions in these sessions:

- Engineering BOM (tiedm1110m000)
- Bill of Material (tibom1110m000)
- Item - Routings (tirou1101m000)
- Routing Operations (tirou1102m000)
- Operation Assignments (tiapl1510m000)
- Generic Bill of Material (tiapl2510m000)
- Assembly BOM and Operations (tiapl2520m000)

Units in JSC

If an item's BOM and routing are the same for various units, you can combine the units into one production order. If the routing or BOM differs for effectivity units due to the definition of exceptions, you cannot combine those units in one production order. Order Planning in Infor LN Enterprise Planning combines units, if possible.

The units of a production order are stored in the order distribution. In the background, all activities of a production order are performed at unit level. The data that is available on order level for items without unit is also available for items with effectivity units. You can use the Production Order Distribution (tisfc0105m000) session to get information about the units. The session displays the units that:

- Are ordered
- Are reported as complete on the last operation
- Are delivered to a warehouse
- Are rejected
- Must be backflushed

- Are backflushed

In addition, the Production Order Distribution (tisfc0105m000) session displays, by unit, the number of ordered items at the time of release. The session also displays the lot code that is assigned to the unit when delivering the item to a warehouse. If various items with the same unit are assigned to multiple lots, the last lot is displayed.

In the following situations you can add or change the order distribution:

- If the production order has the **Planned** status, you can manually specify a unit distribution, which is especially relevant for orders that are manually created.
- If the ordered quantity is changed, you can change the ordered quantity in the Production Order (tisfc0101m100) session, even if an JSC production order is already released. In that case, the changed quantity is by default distributed over the existing unit distribution in the Production Order Distribution (tisfc0105m000) session. To change the ordered quantities, on the appropriate menu, you can click **Change Ordered Quantity**. However, the total ordered quantity of all units must equal the ordered quantity of the production order. If, for example, you have an order quantity of 10 pieces, five for unit 1 and five for unit 2, you can change the order quantity to 14 pieces. LN changes the order distribution: seven pieces for unit 1, and seven pieces for unit 2. If you click the **Change Ordered Quantity** option, you can edit the **Quantity Ordered** fields in the order distribution. For example, you can have six pieces for unit 1, and eight pieces for unit 2.

Report operations as complete

If a production order consists of units, operations must be reported as complete by unit. The unit that you enter must exist in the order distribution.

Based on the data that you enter in the Report Operations Completed (tisfc0130m000) session, LN updates the quantities in the order distribution. The order distribution, however, does not contain information at operation level. As a result, not every action performed in the Report Operations Completed (tisfc0130m000) session triggers an update of the order distribution.

Only when the last operation is completed, the production is completed. When you complete the last operation, the quantities in the order distribution are also updated. However, if you reject an item on the first operation, the item is rejected for further production. As a result, rejections on every operation result in an update of the rejected quantities in the order distribution.

When you complete the final operation, you can transfer the end product to inventory. In that case, LN updates the quantity delivered in the order distribution accordingly.

Report orders as complete

If a production order has a unit distribution, you must report the order as complete by unit. By reporting the quantities as complete in the Report Orders Completed (tisfc0520m000) session, the order distribution is updated.

Estimated material distribution

An item with a specific unit requests material for the same unit. If multiple units are combined in one production order, material for multiple units is required. For every unit, a separate set of estimated material is required. The only difference between the separate sets is the unit number.

You can find the estimated materials by unit in the Estimated Materials (ticst0101m000) session. An estimated material line represents the total estimated quantity of the item concerned.

The units of the estimated material are stored in the Estimated Material Distribution (ticst0508m000) session, which you can start by clicking **Estimated Material Distribution** on the appropriate menu of the Estimated Materials (ticst0101m000) session.

Units in as-built headers

When a production order for a serialized item is created, LN can generate an as-built structure. The as-built structure consists of an as-built header and as-built components. An as-built header represents a unique end product in a production order. The header is identified by the production order number and a serial number that is generated based on a mask.

When the as-built structure is generated, a unit number is assigned based on the order distribution.

The unit number is a default, which you can change. Changes in the unit information are reflected in the order distribution. If a unit number that is not part of the order distribution, is assigned to an as-built header, the order distribution is updated. A new line is created for the unit.

Units in as-built components

Just as for estimated materials, units are assigned to as-built components. You can change the units. Changes in the as-built components are not reflected in the estimated materials.

Unit effectivity and PCS projects

Customized items are part of a PCS project. Unit effectivity is also available for customized items. As a result, you can create exceptions for lines, routings, and routing operations of customized items. You can also define units for customized end items.

Generate project structure

When you enter a standard item with order policy To Order on a sales order line, you can generate a project structure for the item. Instead of entering a standard item, you can also enter a effectivity unit on the sales order line.

Link unit to project part

When you select a unit on the sales order line, and you generate the project structure, the unit is linked to the related project part.

Example

The order policy of the conveyor is changed to To Order. A sales order line is entered for unit 9584.

For this sales order line, a project structure is generated, which means that the item is customized. The item is part of project 123001032.

For the conveyer, a project part with the unit information is generated automatically, which you can view in the Project Parts (tipcs2111m000) session.

Copy exceptions

When you copy a standard item to a customized item, related exceptions are also copied. LN copies exceptions that are defined for the following entities:

- BOM
- Routing
- Routing operations
- Item – purchase business partner
- Sourcing strategy

Copy item settings

The item settings, defined in the general item data, which are related to unit effectivity, are copied from the standard item to the customized item when the project structure is generated.

Unit-effective estimated cost

When a project structure is generated, you can assign a unit to the project part manually or automatically. The estimated cost for the project is calculated for the unit that is defined for the project part.

Units and PCF

In PCF, you can define effectivity units for generic items with order system SIC, Planned, or Manual. Generic items with order system FAS are handled by Assembly Planning and Assembly Control.

You cannot define exceptions in PCF. As a result, you cannot configure a generic BOM or routing using exceptions. In PCF, constraints are used in configuring generic items.

Enterprise Planning, however, explodes unit information to lower-level components. For these lower level components, you can define exceptions. If, for example, a manufactured item is part of a generic item, you can use exceptions to configure the manufactured item.

If a project structure is generated for a generic item on a sales order line, LN creates a customized item for the generic item. On the sales order line, the customized item replaces the generic item. For this top-level customized item, LN generates a project part. The unit that you entered on the sales order line is linked to the project part by LN. After generation of the project structure, PCS functionality applies, which is described in the previous section.

Often, in the structure of a generic item, standard items are present with order policy To Order. If the project structure is generated, these items are also customized. However, exceptions related to these items, for example, exceptions linked to BOM and routing, are not copied to the customized items.

Units in Engineering Data Management (EDM)

Unit effectivity is also supported in Engineering Data Management. First, engineering items and engineering BOMs are defined in EDM. After approval, the engineering items are copied to items in the general item data, and the engineering BOMs are copied to production BOMs.

Defining several occurrences of an item is typically an engineering task, in which effectivity units can be useful. You can assign units to engineering items, and link exceptions to engineering BOM lines. If you link units to an engineering item, and then copy the engineering item to an item in the general item data, the units are copied too. If an engineering BOM is copied (finalized) to a production BOM, the exceptions are copied as well.

Example

A new conveyor is engineered in EDM. The new conveyor's name is conveyor-NE (new edition). Effectivity series are defined for this item in the Items - Effectivity Series (tcuef0101m000) session. You must select the **Engineering Item** check box in the Items - Effectivity Series (tcuef0101m000) session, because an engineering item is involved.

Units are generated for the series.

You can define exceptions in the engineering BOM.

If the engineering item is copied to an item in the item general data, a message appears that asks whether the units must be re-linked to the target item.

If you click **Yes**, you must enter data in the Relink Item - Effectivity Series (tcuef0201m000) session.

The result appears in the Effectivity Units (tcuef0502m000) session. The units are now related to conveyor-NE, a non-engineering item.

After you finalize the BOM, the exceptions are also copied. Those exceptions still refer to the relinked units.

After you copy and relink the units to an item in the general item data, units are no longer linked to the engineering item. However, you can still use the effectivity units in the engineering process for later revisions. In the exceptions of the engineering BOM, you can refer to units that are relinked to the item in the general item data.

You can also create new units for the engineering item, and relink those units as described previously.

Units in APL and ASC

Assembly Planning and Assembly Control control generic items with order system FAS. Those generic items cannot be used in PCF.

In APL, you can define exceptions for the following:

1. Operation Assignments
2. Generic bill of material (which is another BOM than the generic BOM in PCF)
3. Flattened assembly parts and operations

You can enter the effectivity unit on a product variant in APL. This variant differs from the one used in PCF. If the product variant is created on a sales order line, the product variant's unit is taken from the sales order.

Based on engineering data and planning data, APL generates assembly orders that are controlled by ASC. An assembly order has a link to a product variant. The related effectivity unit is displayed on the assembly order.

LN does not communicate unit information to the components (assembly parts) that are required for the assembly order. The assembly parts are always allocated and issued for unit 0. In an assembly environment, effectivity units are used only to vary the content of the assembly orders. The lower level components are standard items for which no unit information is stored.

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