

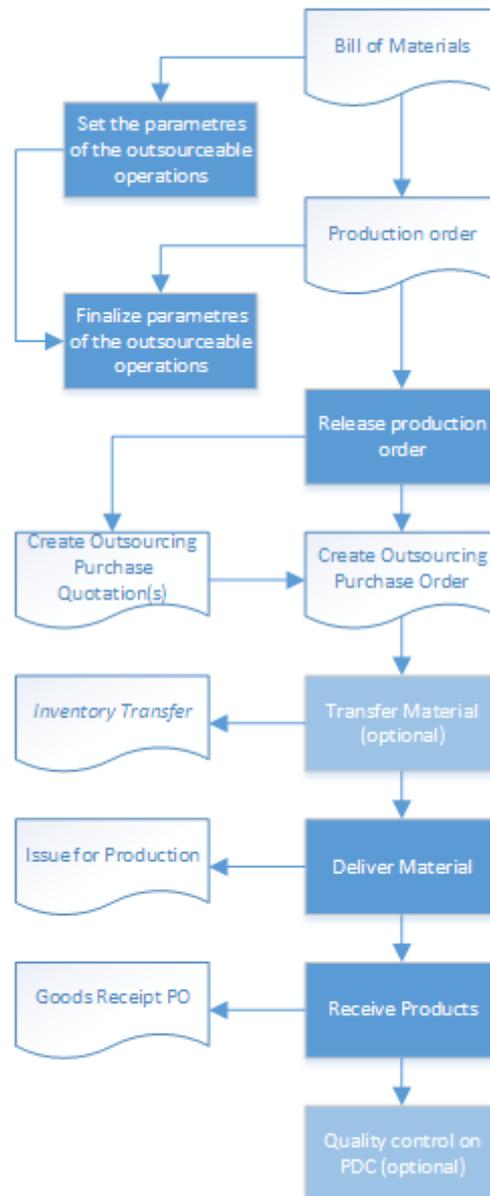
# Outsourced Manufacturing

**Produmex Manufacturing is a legacy product and Boyum IT Solutions no longer sells new installations for it.**

An operation in a Bill of Material or in a Production Order may be defined as outsourced, meaning that this operation is performed by one of our outsourcing suppliers.

Here are the steps in outsourcing:

- Define outsourcing suppliers and supplier warehouses
- Define outsourceable operations (items) with lead times
- Define outsourceable operations with suppliers on the Bill of Materials
- Create production orders and review, fine-tune or redefine outsourced operations
- Release production order
- Create outsourcing purchase quotations and orders
- (Optional) Transfer materials from company warehouses into supplier warehouses
- Deliver materials to supplier
- Receive product from supplier

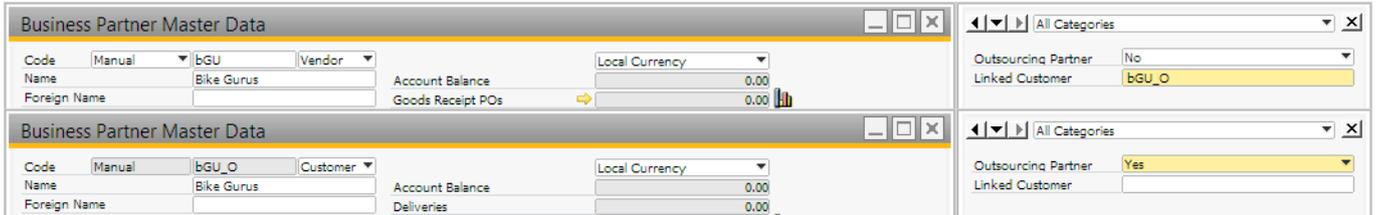


## 1. Configurations

### 1.1. Define Outsourcing Partners and Supplier Warehouse

Every 'Vendor' type business partner can be selected as an outsourcing partner. When the materials are not delivered directly from the main warehouse to the supplier and inter-warehouse stock transfer transactions are applied, an outsourcing warehouse and a customer type business partner should be added for the outsourcing supplier in order to create Stock/Inventory Transfer documents.

To create this "supplier- client", first add the partner as a customer too. On the customer Business Partner Master Data set the customer as an outsourcing partner with the 'Outsourcing Partner' UDF. Link the business partners on the vendor Business Partner Master Data by adding the card code of the customer to the 'Linked Customer' UDF.



This 'supplier-customer' is needed only when the materials are transferred from the main warehouse(s) into the outsourcing warehouse, and when the materials are delivered to the supplier either from the supplier warehouse or directly from the main warehouse.

Supplier warehouses are used and needed only when the materials sent to the outsourcing supplier are moved from the main warehouses of the company to these special warehouses.

To create a supplier warehouse, add the supplier code to the 'Outsourcing Partner' UDF on the warehouse to link the outsourcing partner to the warehouse. The 'Partner Name' field will be automatically filled.



## 1.2. Bill of Materials with Outsourced Operations

### 1.2.1. Defining Outsourced Operations in BoMs

When creating an operation item it has to be set to be 'Purchased' in order to be outsourceable; since when a purchase order is created for outsourcing, it is the operation item that is included in the purchase order document.

Define the operation as outsourced either on BoMs and Production orders Operation Details form. On the Outsourcing tab, tick the 'Is Outsourced' box to enable the outsourcing.

**Bill of Materials (Resource List)**

Product No.   
 Product Description   
 BOM Type   
 Production Std Cost   
 Planned Average Production Size

#	Row Type	R..	Type	No.	Description	Quantity	Uo...	Warehouse	Issue Method	Production Std...	Total Productio...	Price List
1	Material		Item	mM1001	Painted Bike Framework	1	pcs	01	Manual	\$ 0.00	\$ 0.00	Price List 01
2	Material		Item	m3	Chain	1	pcs	01	Manual	\$ 0.00	\$ 0.00	Price List 01
3	Material		Item	m4	Wheel	2	pcs	01	Manual	\$ 0.00	\$ 0.00	Price List 01
4	Operation		Item	oPAS	Bike Assembly	180	min	01	Backflush	\$ 0.00	\$ 0.00	Price List 01

**BoM Operation Details**

Operation Code  Operation Break   
 Operation Name  Operation Time UoM   
 Main Product Code  Is Parallel Operation   
 Main Product Name  Is Overlapping Operation   
 Before Time   Max Parallel Operations   
 Safety Time   Overlapping Quantity   
 Setup Time   Allocation Window   
 Job Time   Min Job Quantity   
 Teardown Time    
 After Time    
 Time Base

Resource Requirements   Outsourcing   Documentation   Cost Amounts

Is Outsourced  In House Quantity   
 Outsourcing Lead Time   Outsourcing UoM   
 Items Per Outsourcing Unit

Supplier Code	Supplier Name	Planned Qty.
<input type="text" value="bGU"/>	Bike Gurus	1.000

OK   Cancel

An operation can be fully or partially outsourced. In the 'In House Quantity' field define the quantity that is not outsourced. When the 'Null InHouse Quantity for Outsourcing' option is enabled on the Master Data tab, the default In House quantity on the BoM Operation details form will be zero, meaning that the operation is fully outsourced. When this setting is not enabled, the default quantity is the default value.

If an operation is fully outsourced its icon is changed in the BoM form's matrix. The possible outsourcing suppliers can be listed in the outsourcing grid. It is possible that an operation is outsourced to multiple suppliers in the ratio defined in the Planned Qty value. The default 'Outsourcing UoM' is the Purchasing UoM of the operation but it is possible to adjust it. Add a new UoM and specify how many inventory units make for one outsourced unit on the 'Items per Outsourcing UoM' field.

Set an unit price for the outsourced operation. When the purchase order is created, the appropriate price is used.

The Lead Time of an outsourced operation does not dependent on the quantity manufactured, which might be a limitation. The Lead Time concept comes from standard SAP Business One. The Lead Time can be meant in working days or calendar days: this is the value of 'Lead Time Type' UDF on the Item

Master Data of the operation.

The lead time can be set:

- On the MRP tab of Produmex Manufacturing settings  
Set the 'Default Outsourcing Lead Time'. This value is used when no Lead Time is defined on the Item Master Data or on the Operation Details.
- On the Planning tab of the Item Master Data  
Set a default lead time for an item on the 'Lead Time' field.
- On the Outsourcing tab of the Operation Details form  
Specify a lead time for the current operation on the 'Outsourcing Lead Time' field.

### 1.2.2. Defining Materials for Outsourced Operations

Regular materials can be defined for outsourcing operations just like for non-outsourced operations. These materials are delivered to the supplier partner. When the 'ProdOrder Allow Simplified Outsourcing' option on the Prod.Order tab of Produmex Manufacturing settings is disabled, the use of unfinished products and materials is mandatory. In simplified outsourcing unfinished products and materials are optional.

Here is an example how to define unfinished products/materials.

The screenshot shows the 'Bill of Materials (Resource List)' window for Product No. p1001-1 (Red Bike). The table lists various components and operations. A red box highlights rows 4 through 7, which represent an outsourced operation and its associated unfinished products and materials.

#	Row Type	R..	Type	No.	Description	Quantity	UoM Name	Warehouse	Issue Method	Production Std Cost
1	Material		Item	mM1001	Painted Bike Framework	1	pcs	01	Manual	\$ 0.00
2	Material		Item	m3	Chain	1	pcs	01	Manual	\$ 0.00
3	Material		Item	m4	Wheel	2	pcs	01	Manual	\$ 0.00
4	Operation		Item	oPAS	Bike Assembly	180	min	01	Backflush	\$ 0.00
5	Cost		Item	cOST1	Project Management	1		01	Backflush	\$ 0.00
6	Unfinished		Item	uP1001-0	Red Bike (Basic)	-1	pcs	01	Backflush	\$ 0.00
7	Unfinished		Item	uP1001-0	Red Bike (Basic)	1	pcs	01	Manual	\$ 0.00
8	Operation		Item	oPQA	Quality Assurance	3	min	01	Backflush	\$ 0.00
9	Material		Item	m5	Bell	1	pcs	01	Manual	\$ 0.00
10	Material		Item	m6	Screw 8mm (Nut + Bolt)	1	pair	01	Manual	\$ 0.00
11	Operation		Item	oPBI	Bell Installation	5	min	01	Backflush	\$ 0.00
12	Cost		Item	cOST2	Energy	1		01	Backflush	\$ 0.00
13			Item							

This BoM has three operations: The first one is outsourced and the last two is non-outsourced. When an outsourced operation is followed by other operations and materials, the 'unfinished product' item must be added to the BoM twice. First add it right after the operation with the row type 'Unfinished product'. Then add the unfinished product item before the next operation with the row type 'Unfinished material'.

#### 1.2.3.1. Define 'Unfinished product' items

On the Item Master Data of the product, set the 'Is Unfinished Product' UDF to 'Yes'. Normally these

items are only 'Inventory' items since these are purely internally used to keep track of the stock of the interim manufacturing items.

On the Planning tab set the Planning method to 'None' to prevent the MRP to make recommendations.

On the 'Inventory Data' tab make sure that the valuation method is set to 'Standard' to avoid inventory transaction errors. Since the Unfinished Product items are used only in manufacturing transactions, they should be defined for the manufacturing warehouse and all relevant supplier warehouses.

The screenshot shows the SAP Item Master Data configuration for item uP1001-0. The 'Inventory Item' checkbox is checked. The 'Is Unfinished Product' dropdown is set to 'Yes'. The 'Item Role' is set to 'Item'. The 'Lead Time Type' is set to 'Working Days'. The 'NeedsPDC Approval' is set to 'No'. The 'Obsolete Tolerance Days' is set to '-1'. The 'Price List' is set to 'Labor-Free Price'.

### 1.2.3.1. Add 'Unfinished product' items to the BoM

The same intermediate item has to be included in a BoM twice: first with row type 'Unfinished Product' followed by a row type of 'Unfinished Material'.

If the last operation is outsourced, no unfinished product has to be defined for that operation, since the product of that operation is the actual product item of the BoM. Here is then the sequence of rows in a BoM:

- (In-House or Outsourced) Operation
- (Cost)
- Unfinished Product
- Material
- Unfinished Material with the same item code as the preceding Unfinished Product
- (In-House or Outsourced) Operation
- Other materials/ operation

Since the unfinished products are normally available only in the manufacturing and the supplier warehouses, the source warehouse for the unfinished product/material rows in the BoM should be set accordingly. Since the inventory management of unfinished products works best with PDC, the milestone types of the rows should be set accordingly. The milestone type of operations should be set to 'Milestone' and all other materials and unfinished products are best to set to 'Depends on every', other 'Depends on ...' values are supported as well, of course. The quantity value of the unfinished product must be a negative value (-1 if the X Quantity in the BoM header is 1, which is automatically set by the PPS module), and therefore the issue method can only be backflush, enforced by SAP Business One.

Make sure that the Milestone Type in the header of the BoM is set to 'Depends on Every' in order that whenever a PDC completion booking is reported for the milestone last operation, the main product is taken onto stock automatically with a Receipt from Production transaction.

*Please note: Defining a serial or batch managed item as 'Unfinished product' is not supported. Because the quantity value of an unfinished product must be set as negative, the issue type can only*

be 'Backflush'. If PDC is not used, the automated inventory management functions for unfinished product rows are not available, and have to be made manually, which should be avoided.

## 2. Outsourcing process

### 2.1. Outsourced Operations in Production Orders

When a 'Standard' production order is created from a BoM, the outsourced operations are copied with their parameters as usual. At this point the user may modify a number of parameters, the most typical being to change the actual supplier. When a production order is released, the duration of the outsourced operation is calculated from the Lead Time. Outsourced operations are not assigned to any work centers.

Outsourced operations are only included in the Job Requirements report if the 'Include Outsource Operations In Job Requirements Report' option is enabled on the Prod.Order tab of Produmex Manufacturing settings.

On the production order outsourcing UDFs are added to review the outsourced quantities.

- *Outsourced Quantity On Order*: The sum of the outsourced quantities on the production order.
- *Planned Outsourced Quantity*: The sum of the planned outsourced quantities on the production order.
- *Completed Outsourced Quantity*: The sum of the already completed outsourced quantities on the production order.
- *Rejected Outsourced Quantity*: The sum of the rejected outsourced quantities on the production order.

### 2.2. Creating Outsourcing (Purchase) Orders

When the 'Automatic Generation of Outsourcing Purchase Orders on Production Order Release' option is enabled on the Prod.Order tab, outsourcing purchase order are automatically created when the production order is released otherwise the user have to create them manually. Purchase quotations can only be generated manually.

When using this setting with an enabled 'Immediate Release after Add' option, the production order will be released and outsourcing orders will be created automatically after the production order was added or created by MRP.

#### 2.2.1. Creating Outsourcing Orders Manually from Production Order Operation Details Form

Outsourcing (purchase) orders or quotations can be created manually from the operation details form. When the production order is in released mode and unchanged, open the outsourced operation details form and enter the 'Quantity to Order' value on the row of the selected supplier.

To create a purchase quotation, press the 'New Purchase Quotation' button. When creating a Purchase Order based on a Purchase Quotation, references for the production order will be copied.

To create a purchase order, press the 'New Purchase Order' button.

Production Order Operation Details - [DocNum: 520, Line: 3]

Operation Code	oPAS		Operation Break	Allowed
Operation Name	Bike Assembly		Operation Time UoM	Minutes
Before Time	min	0.000	Is Parallel Operation	<input type="checkbox"/>
Safety Time	min	0.000	Is Overlapping Operation	<input type="checkbox"/>
Setup Time	min	0.000	Max Parallel Operations	0
Job Time	min	180.000	Overlapping Quantity	0.000
Teardown Time	min	0.000	Allocation Window	0.000
After Time	min	0.000	Min Job Quantity	0.000
Time Base	1.000		Message	Cannot allocate WorkCenter, dueDate=12/2/2016 2:50:00 PM AllocationError, quantity: 0.000000 of 2.500000 allocated, WorkCenters: wAS, Date range: 12/2/2016
Planned Quantity	5.000		Is Pinned	<input type="checkbox"/>
Completed Quantity	0.000		Pinned Start Date	
Rejected Quantity	0.000		Pinned Start Time	00:00

Resource Requirements | Dates | **Outsourcing** | PDC Bookings | Documentation | Cost Amounts

Is Outsourced  In House Quantity 2.500  
 Outsourcing Lead Time Days 0 Outsourcing UoM  
 Items Per Outsourcing Unit 1.000  
 In House Ratio 0.500

**New Purchase Order**  
**New Purchase Quotation**

Supplier Code	Supplier Name	Planned Qty.	Supp. Ratio	Quantity To Order	Qty. On Order	Qty. Received	Quantity Quoted
bGU	Bike Gurus	2.500	0.500	1.00	1.500	0.000	1.000
eBS	Extra Bike Supplies	0.000	0.000	0.00	0.000	0.000	0.000

Document Type	Pu.Ord.No	Pu.Ord.ID	Pu.Quot.No	Pu.Quot.ID	Supplier	Supplier Name	Qty. On Order	Qty. Received	Pu.Ord. Due Date
Purchase Quotation			500	1	bGU	Bike Gurus	0.000	0.000	
Purchase Order	509	10			bGU	Bike Gurus	1.500	0.000	12/02/16

OK Cancel Allocations

The outsourcing order is a regular purchase order with some special text lines and remarks. The ordered item is the operation item. The components required for the operation are listed as 'Customer Materials'. These items have to be delivered to the supplier. The 'Unfinished product' is the product of the outsourced operation. The unit price comes from the price list of the operation item.

The user can change most of the data of these purchase orders manually, however the operation item and text lines should not be deleted.

### Purchase Order - Split

Vendor: eBS  
 Name: Extra Bike Supplies  
 Contact Person: [dropdown]  
 Vendor Ref. No.:  
 Local Currency: [dropdown]

No. Primary: 532 - 0  
 Status: Open  
 Posting Date: 12/09/16  
 Delivery Date: 12/09/16  
 Document Date: 12/09/16

Item/Service Type	Item	Quantity	Unit Price	Disc...	Tax C...	Total (LC)	Manual Planning	UoM Code	MTO Scenario
1	ePAS	5		0,000			No	Manual	
2	Customer Material: mM1001: Painted Bike Framework Quantity: 5.00								
3	Customer Material: m3: Chain Quantity: 5.00								
4	Customer Material: m4: Wheel Quantity: 10.00								
5	Unfinished Product: uP1001-0: Red Bike (Basic) Quantity: 5.00								
6				0,000			No		

Buyer: -No Sales Employee-  
 Owner: [dropdown]

Remarks: Based on Production Order 558  
 Based On Purchase Quotation 507.

Total Before Discount: [input]  
 Discount: [input] %  
 Rounding  
 Tax: [input]  
 Total Payment Due: \$ 0.00

### Purchase Quotation

Vendor: eBS  
 Name: Extra Bike Supplies  
 Contact Person: [dropdown]  
 Vendor Ref. No.:  
 Local Currency: [dropdown]

No. Primary: 507  
 Status: Closed  
 Posting Date: 12/09/16  
 Valid Until: 12/16/16  
 Document Date: 12/09/16  
 Required Date: 12/16/16

Item/Service Type	Item	Quantity	Unit Price	Disc...	Tax C...	Total (LC)	Manual Planning	UoM Code	MTO Scenario
1	ePAS	5		0,000			No	Manual	
2	Customer Material: mM1001: Painted Bike Framework Quantity: 5.00								
3	Customer Material: m3: Chain Quantity: 5.00								
4	Customer Material: m4: Wheel Quantity: 10.00								
5	Unfinished Product: uP1001-0: Red Bike (Basic) Quantity: 5.00								

Buyer: -No Sales Employee-  
 Owner: [dropdown]

Remarks: Based on Production Order 558

Total Before Discount: [input]  
 Discount: [input] %  
 Rounding  
 Tax: [input]  
 Total Payment Due: \$ 0.00

## 2.3. Inventory Management for Outsourced Operations

Open the Inventory Management for Outsourced Operations form from the Production module or from the right-click menu of an outsourcing purchase order document. When opening the form from the module, first select the supplier. When there is a defined warehouse for the selected supplier, the Supplier Warehouse field is automatically populated.

Then select the purchase order. The production order details will be automatically filled.

When opening the form from the purchase order, the purchase order and supplier fields will be automatically filled based on the purchase order.



On the upper grid every material linked to the outsourced operation will be listed. On the lower grid products to receive will be listed.

### 2.3.1. Transfer materials to the supplier warehouse

In most outsourcing situation the materials are provided for the outsourcing partner by the company. When precise inventory tracking is required, materials should be transferred for the duration of the outsourced operation to a warehouse dedicated to the supplier.

Row Type	Backfl.	Mat. Code	Mat. Name	Pr.Ord. Mat.ID	Whse	Available Qty.	Qty.	Planned Qty. to Deliver	Qty. Transferred	Qty. Delivered
Material	<input type="checkbox"/>	ePAS	Painted Bike Framework	00010367	e01	0.00	1.000	1.000	0.000	0.000
Material	<input type="checkbox"/>	m3	Chain	00010368	e01	0.00	1.000	1.000	0.000	0.000
Material	<input type="checkbox"/>	m4	Wheel	00010369	e01	65.00	0.000	2.000	2.000	0.000

To transfer the materials to the supplier warehouse, tick the 'Transfer Materials' box. Adjust the

source warehouse on the 'Whse' cell and the quantity to transfer on the 'Qty' cell (if needed) then click on the 'Update' button. The transfer is booked in an Inventory Transfer document.

The business partner is the outsourcing customer. The outsourcing order number, the production order number and the outsourcing supplier is added as a 'Remark'.

The screenshot shows the 'Inventory Transfer' window with the following data:

Business Partner	eBS_O	Number	503
Name	Extra Bike Supplies_Outsourcin	Series	Primary
Contact Person		Posting Date	12/09/16
Ship To	USA	Document Date	12/09/16
From Warehouse	01	To Warehouse	01
To Bin Location		Price List	Price List 01

#	Item No.	Item Description	Fro...	From Bin Loc...	To Ware...	To Bin Location:	First To-Bin-L...
1	m1	5m Steel Pipe	01	5	02		

Journal Remarks: Inventory Transfers - eBS\_O

Remarks: BXIMSTR: Outsourcing Order 530 for Production

To print the Outsourcing Deliver Note, tick the 'Print Delivery Note' option too before the update. (The default report is: RL\_OutsourcingDeliveryNote)

**Outsourcing Delivery Not**

Ship To: Extra Bike Supplies

Document Date: 12/09/16

Doc. Number: 503

Doc Type: Inventory Transfer

Sales Employee: -No Sales Employee-

Customer Code: eBS

Line No.	ItemCode	Description	Quantity	UoM
1	m1	5m Steel Pipe	5.00	pcs

Remarks: Inventory Transfers - eBS\_O

*Please note: When no supplier warehouse is defined, the 'Transfer Material' option is not available. For material transfers it is required that the outsourcing supplier has a linked customer. (See: 1.1. Define Outsourcing Partners and Supplier Warehouse)*

*When working with MultiBranch company databases, the source and target transactions must be in the same branch. SAP B1 does not allow direct cross-branch inventory transactions. The supplier warehouse has to be in the same branch as the source warehouse from which the materials are delivered to the supplier. The production order warehouse must be in the same branch as the outsourcing warehouse. Cross-Branch outsourcing is not supported to any extent. In practice, branches cannot share the outsourcing suppliers since each supplier can have only one outsourcing warehouse and that warehouse must belong to a single specific branch. Likewise, a production order is allocated to a single branch, therefore it can only be linked to an outsourcing supplier of the same branch.*

**2.3.1.1. Inventory Transfer for Backflush Materials**

Stock/Inventory Transfer is supported for backflush materials as well. It is very important that the source warehouse for backflush materials in the production order is set to the outsourced operation's supplier's warehouse. Otherwise, the materials are retrieved from the wrong warehouses when the automatic backflush is applied.

**2.3.1.2. Inventory Transfer for Materials managed by serial/batch numbers**

After the 'Update' button has been clicked, 'Batch/Serial Number Selection' form opens. On this form select the batch/serial number(s) of the material(s) to transfer.

On the 'Rows from Documents' grid every serial or batch numbered item to transfer is listed. On the 'Quantity' field the total quantity to transfer is displayed. On the 'Total Needed' field the open quantity and on the 'Total Selected' field the selected quantity is shown. The number of the selected batches is displayed on the 'Total Batches' field.

**Batch number**

To find a batch, enter the batch number to the 'Find' field then press TAB.



The screenshot shows a software window titled "Batch / Serial Number Selection". It contains a table with the following data:

Item No.	Item Description	Warehouse	Quantity	Total Needed	Total Selected	Direction
Item02	Batch nbr - Bin Location	01	1.00	0.00	1.00	Out
Item03	Serial nbr	01	1.00	0.00	1.00	Out

Below the table, there are two sections: "Available Serial Numbers" and "Selected Serial Numbers". The "Available Serial Numbers" section has a "Find" input field and a list of serial numbers: SNR0009, SNR0010, SNR0005, SNR0006, SNR0007, SN2001, and SNR2021. The "Selected Serial Numbers" section has a list with SNR0008 selected. There are navigation arrows between the two lists and "Update" and "Cancel" buttons at the bottom.

### 2.3.2. Deliver materials from the company's inventory

After the outsourced operation was completed, the materials in the supplier warehouse should be released/issued as consumed by the manufacturing.

To issue the materials, tick the 'Deliver Materials' box. Adjust the quantity to issue on the Qty cell and the source warehouse if needed then click on the 'Update' button. The components will be issued and an 'Issue from production' order will be generated.

*Please note: The material delivery option is not available for backflush components and these materials will be removed from the grid when ticking the 'Deliver Material' option. (Backflush materials will be issued automatically after the main product is taken into stock.)*

The outsourcing order number, the production order number and the outsourcing supplier is added as a 'Remark' to the document.

#	Order No.	Series No.	Row ...	Type	Item No.	Item Description	Quantity	Bin L...	Item Cost
1	521	Primary	2	Item	m3	Chain	1		\$ 5.00

### 2.3.2.1. Deliver materials managed by serial/batch numbers

After the 'Update' button has been clicked, 'Batch/Serial Number Selection' form opens. On this form select the batch/serial number(s) of the material(s) to deliver as described in 2.3.1.1. *Inventory Transfer for Materials managed by serial/batch numbers.*

### 2.3.3. Receiving the Products from the Outsourcing Supplier

When the outsourced operation is (partly) completed, the products should be taken into stock.

Add the quantity to receive to the 'Operation Quantity' field. The default value is the quantity still to receive. When outsourcing 'Unfinished Product' items, the issued quantity of the unfinished material must be exactly the same as the received quantity of the unfinished product.

Tick the 'Products Received' box. The destination warehouse can be adjusted on the grid. Click on the 'Update' button to receive the products. A 'Receipt from Production' document will be generated.



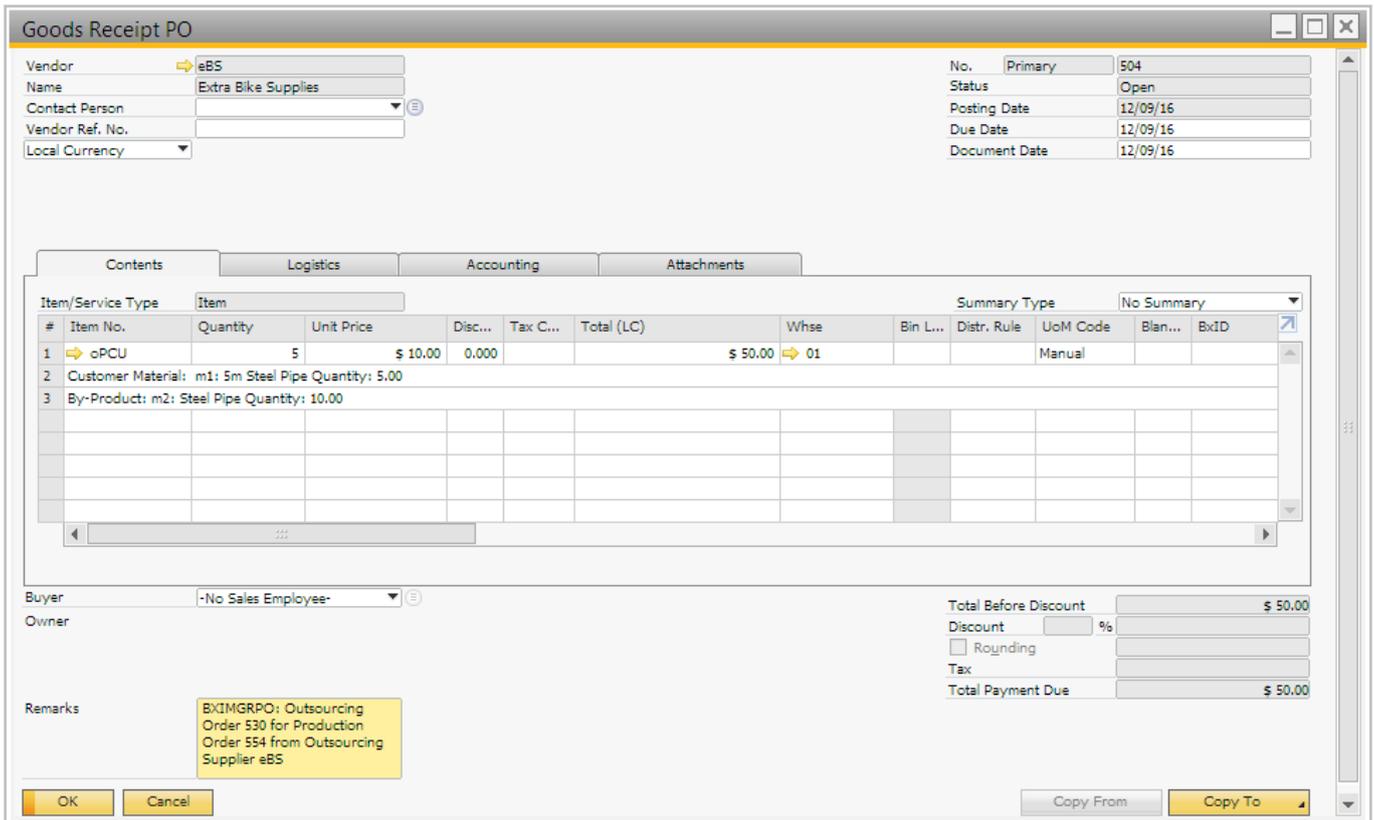
After all products have been received the purchase order is closed automatically.

When the 'Goods Receipt PO' box is also ticked, a Goods Receipt PO document linked to the Purchase order is also generated with the appropriate values.

Received and issued material quantities are also maintained on the base Production Order document.

**2.3.3.1. Quality controlling on the shopfloor**

After the delivery (Goods Receipt) document is created for an outsourced operation, quality assurance can be executed on the shopfloor. Based on the quality qualifications, an outsourced operation might be rejected. For more information about the quality control of the outsourced operations, please see: [PDC Quality Controlling](#).



**2.4. Completing the production order**

When the last operation of the production order is completed, the unfinished materials, which are the same as the outsourcing operation unfinished product, as well as the other materials for the operations are issued for production, and the main product is taken onto stock.

When the main product is taken onto stock from production, the backflush materials are automatically issued for production in the ratio of the completed and, if there were any, rejected product quantity.

Since unfinished products have negative quantities similarly to by-products, they will be automatically taken onto stock. To negate this transaction and to maintain the stocks in balance, the system automatically issues these products and books transaction in a Goods Issue document.

To see the stock flow of the unfinished products, open the Inventory Posting List.

Posting Date	Document	Doc. Row	Whse	G/L Acct/BP Code	G/L Acct/BP Name	Inventory UoM	Qty	Price after ...	Balance
11/25/16	MR 500	10	01		Red Bike (Basic)	pcs		\$ 100.00	
12/05/16	SI 500	1	01	13400000-01-001-01	Inventory - Finished Goods (HO, USA, GA )	pcs	1	\$ 0.00	1
12/05/16	SI 501	1	01	13400000-01-001-01	Inventory - Finished Goods (HO, USA, GA )	pcs	1	\$ 0.00	2
12/09/16	SI 502	1	01	13400000-01-001-01	Inventory - Finished Goods (HO, USA, GA )	pcs	2	\$ 0.00	4
12/09/16	SI 503	2	01	13400000-01-001-01	Inventory - Finished Goods (HO, USA, GA )	pcs	2	\$ 100.00	6
12/09/16	SO 506	1	01	13400000-01-001-01	Inventory - Finished Goods (HO, USA, GA )	pcs	-2	\$ 0.00	4
12/09/16	SO 507	1	01	13400000-01-001-01	Inventory - Finished Goods (HO, USA, GA )	pcs	-2	\$ 0.00	2
									2

Split Display by Batch/Serial Numbers  
 Split Display by Bin Locations

### 3. Overview the outsourced operations

#### 3.1. Outsourcing Manufacturing Overview

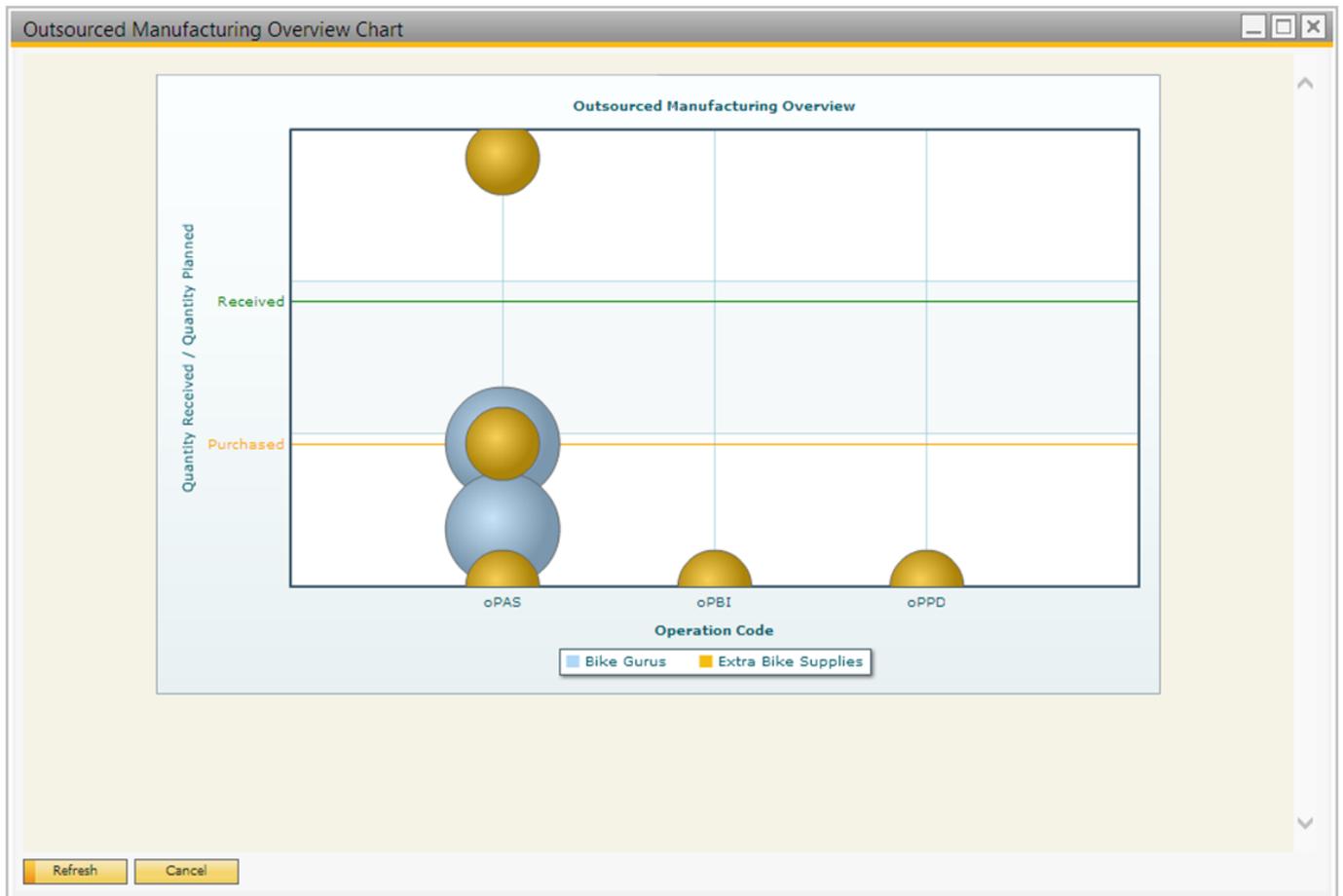
Open the form via the following path: Production > Production Reports > Outsourcing Manufacturing Overview. On this form the user can review the status and the details of outsourced manufacturing operations. Operations are grouped by the main product.

Main Prod. Code	Main Prod. Name	Main Prod. Qty.	Pv.Ord. Due Date	Pv.Ord.No.	Pv.Ord.Line	Pu.Ord.No.	Op. Code	Op. Name	Pv.Ord.Op.ID	Op. Due Date	Op. Due Time	Op. Qty.	In House Qty.	Supplier	Supplier Name	Planned Qty.	Qty. On Order	Qty. Received	Pu.Ord. Due Date	Purchase Order Doc Date
p2001-1	Red Bike	5,000	12/17/16	518	4	508	cPAS	Bike Assembly	0000285	12/16/16	17:42	900,000	2,500	BOU	Bike Gunst	2,500	1,000	0,000	12/16/16	11/29/16
	Red Bike	5,000	12/17/16	518	4	507	cPAS	Bike Assembly	0000285	12/16/16	17:42	900,000	2,500	BOU	Bike Gunst	2,500	2,500	0,000	12/16/16	11/29/16
	Red Bike	5,000	12/17/16	518	4	508	cPAS	Bike Assembly	0000285	12/16/16	17:42	900,000	2,500	eBS	Extra Bike Supplies	0,000	1,000	0,000	12/16/16	11/29/16
	Red Bike	5,000	12/17/16	518	4	507	cPAS	Bike Assembly	0000285	12/16/16	17:42	900,000	2,500	eBS	Extra Bike Supplies	0,000	2,500	0,000	12/16/16	11/29/16
	Red Bike	1,000	12/09/16	521	4	514	cPAS	Bike Assembly	0000917	12/14/16	10:44	180,000	0,000	eBS	Extra Bike Supplies	1,000	1,000	0,000	12/14/16	12/05/16
	Red Bike	1,000	12/09/16	521	4	515	cPAS	Bike Assembly	0000917	12/14/16	10:44	180,000	0,000	eBS	Extra Bike Supplies	1,000	1,000	2,000	12/14/16	12/05/16
p2002-2	Green Bike	1,000	12/19/16	522	4		cPAS	Bike Assembly	00009282	12/07/16	14:37	180,000	0,000	eBS	Extra Bike Supplies	1,000	0,000	0,000	12/07/16	12/05/16
	Green Bike	1,000	12/19/16	522	7		cPEI	Bell Installation	00009285	12/12/16	14:41	5,000	0,000	eBS	Extra Bike Supplies	1,000	0,000	0,000	12/12/16	12/05/16
	Green Bike	1,000	12/19/16	522	9		cPPD	Painting and Drying	00009287	12/15/16	14:41	20,000	0,000	eBS	Extra Bike Supplies	1,000	0,000	0,000	12/15/16	12/05/16

Please note: Purchase quotations for outsourcing are not displayed on this form.

#### 3.2. Outsourcing Manufacturing Overview Chart

Open the chart via the following path: Production > Production Reports > Outsourcing Manufacturing Overview Chart. The bubble chart displays the performance and progression of the outsourced operation types. Operations outsourced to different supplier are distinguished by color.



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