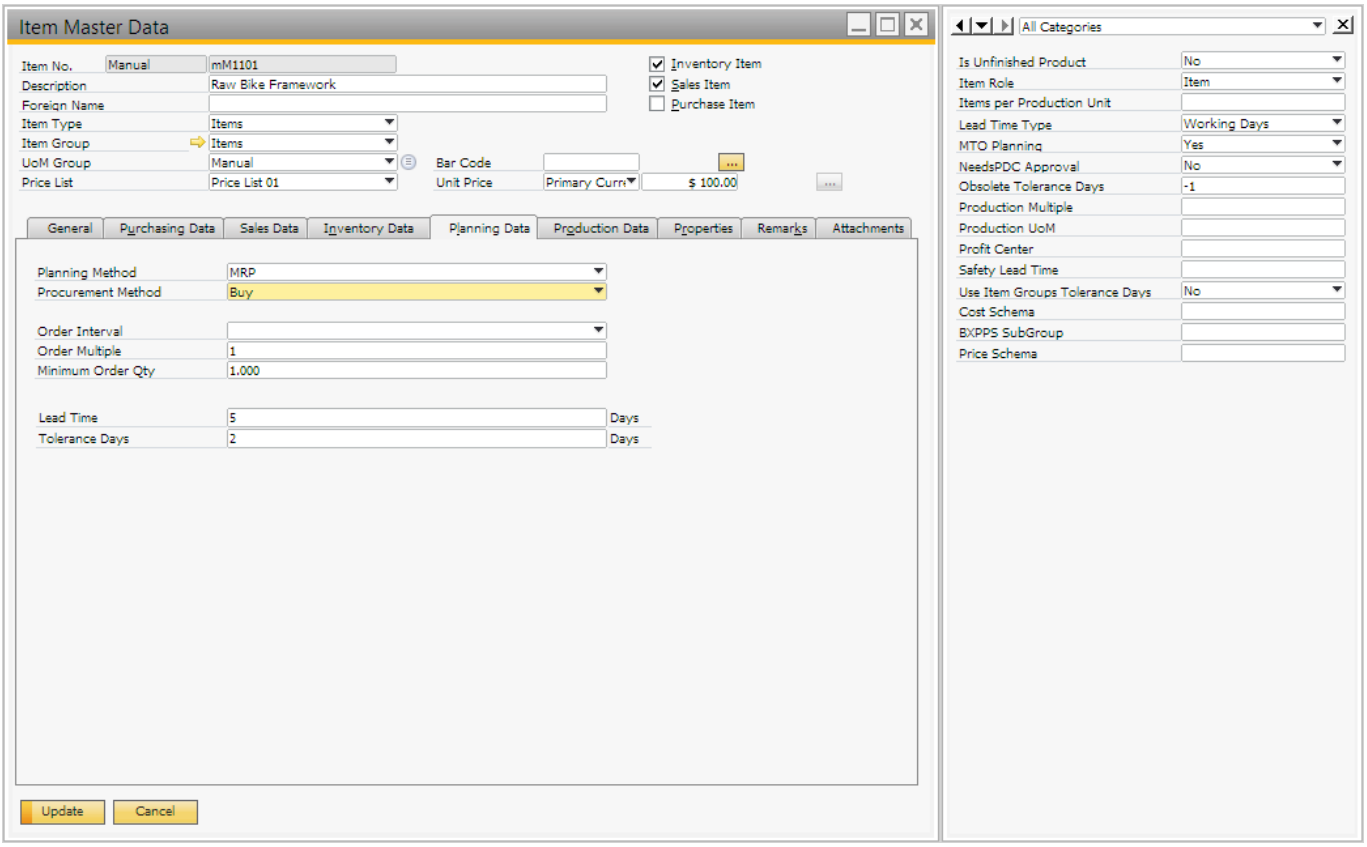
Key Extensions for SAP Business One

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

1. Item Master Data

1.1. User Defined Fields

Produmex Manufacturing extended the standard SAP Item Master Data with the following user defined fields:



Is Unfinished Product
Defines whether the item is an unfinished product or not. Unfinished products are used only when working with outsourced manufacturing. Set the ‘’Planning method’ on the ‘Planning Data’ tab to ‘None’ to prevent MRP to make recommendations. Make sure that the Valuation Method of the item is ‘Standard’.

Lead time type
Defines whether the lead time is calculated in calendar days or weekdays.

Safety Lead Time
Defines the earliest date when a purchased material is available. When there is a Safety Lead Time added, the Begin Date of a Purchase Recommendation is calculated as {Due Date – (Lead Time +

Safety Lead Time)}.

Item role
Indicates whether it is an item or an operation. Items with the role 'Item' work as standard SAP items. Items with the role 'Operation' represent manufacturing operations on the BoM or production order. Operation items can be specified further on the Operation Details forms. This field cannot be modified manually.

MTO planning
Defines whether the item is taken into account in MTO planning or not.

NeedsPDC approval
Defines whether the PDC bookings related this items has to be approved by an appointed employee or not.

Use Item Groups Tolerance Days
If set to 'No', during the MRP the Tolerance Day set on the 'Planning Data' tab will be taken into account. If set to 'Yes', the MRP will calculate with the Tolerance Day set for the item group the item belongs.

Cost Schema
Add a cost schema to the item.

Price Schema
Add a price schema to the item.

1.2. Right-click menu

1.2.1. Material Account

The item flow can be viewed in the Material Account Grid or Diagram.

On the grid the current stock level of each warehouse and the planned receipts/issues are listed. By default the displaying period is three months starting from the current day, but the period can be modified by changing the values of the 'From Date' and 'To Date' fields.

On the 'Material Account Diagram' form stock flow is displayed on a graph.

If the 'Graph Filter' value is *'All Warehouses'*, the material flow is displayed separately for each warehouse among the total flow. If the value is *'Only Total'*, then only the consolidated flow is displayed. Select the displaying scale from the 'Graph Scale' dropdown list.

When the mouse cursor is moved over the circled arrow icons, a bubble shows details about that transaction; if the icon is clicked the appropriate production, purchase, etc. order form is opened. The

up arrow shows incoming, the down arrow outgoing inventory transactions.

Red areas indicate stock deficit while green areas show stock availability.

1.2.2. Calculate Bills of Materials

Please see: Cost Calculation

1.2.3. List of Calculated Bill of Materials

Please see: Cost Calculation

> When duplicating an item that has a Bill of Materials, the system will ask whether to duplicate the BoM too.

2. Business Partner Master Data

2.1. User Defined Fields

Produmex Manufacturing extended the Business Partner Master Data with the following user defined fields used in outsourcing:

Outsourcing Partner
Defines if the business partner is an outsourcing partner or not.

Linked Customer
Link ‘customer’ outsourcing partners to the ‘vendor’ outsourcing partner by adding the code of the customer to this field.

4.3. Bill of Materials

The standard SAP Business One BoM is extended with operation items. Through operation items, features and resources can be linked to the production. For fine - tuning the scheduling of the receipts and issues, milestone types can also be set.

4.3.1. Header and Grid

Row type

A row in a BoM may be of type:

- Material (purchased or own-manufactured)
- Operation
- Unfinished Product (unfinished product sent to the outsourcing partner)
- Unfinished Material (unfinished material received from the outsourcing partner)
- Supplier Material
- By-Product (a material with negative quantity)
- Phantom (a virtual item in SAP Business One)
- Cost (any non-inventory item)

The sequence of materials and operations are important: materials required for an operation should come above (from top down) the operation, while produced products should come below. It is possible to define operations that do not require materials or do not create products.

The system differentiates purchased and own-manufactured materials. Materials that have their own BoM are regarded as own-manufactured. These materials are indicated with a factory icon on the 'Row Image' field. When clicking on the yellow arrow, for own-manufactured materials the BoM, while for purchased materials the Item Master Data will open.

The operation quantity indicates the time required for the process. The initial parameters of an operation are copied from the manufacturing operation, and these parameters may be customized for the BoM. The operation details form can be opened by clicking the row image icon. An operation can be defined as outsourced too. Fully outsourced operations are indicated with a different icon on the 'Row Image' field.

Row Image

Indicates the row type.

	raw material/subassembly material/supplier material
	operation/fully outsourced operation
	unfinished product/unfinished material
	by-product
	phantom item
	cost

To see the Operation Details form, click on the Row Image of the operation.

Milestone Type

The two main function of milestones is to connect the operation lines with the belonging materials and to determine for what operations PDC information should be captured.

With the help of the milestones, during a PDC booking for the operation line the belonging materials or the product can also be booked. Milestones can be set for every BOM line where the row type is not 'Cost'. You can set the milestone type at a phantom line, but it makes no sense as the milestone settings from the BoM of the phantom item will be used in the production order.

The 'Milestone type' field can have five values:

- *None*: The milestone is turned off.
- *Milestone*: The line is a milestone. Only operations can be milestones.
- *Depends on Begin*: The line is a dependent line that will be issued when a Start Job is reported for the belonging operation.
- *Depends on Every*: The line is a dependent line that will be issued/received at every PDC booking where a quantity is booked. (Partial job/Complete job)
- *Depends on End*: The line is a dependent line that will be issued/received at every complete job booking for the belonging operation.

> We recommend to only use the 'Depends on End' milestone type if the base quantity of the material is 1 and only 'Completed' job bookings are used.

For the depending line the issue type must be 'Manual' while for operations it must be 'Backflush'. Outsourced operations must be set to milestones and the issue method for an unfinished product must be set as 'Backflush'. To set a milestone for the product, use the 'Milestone type' column on the BoM.

When you save the BoM, there is a validation for the milestones.
A warning will appear if there is no belonging operation for a material line with a 'Depends on…' milestone setting.
The saving will be blocked in the following cases:

- There is a material line with the milestone type set to 'Milestone'.
- There is an operation with the Issue Method is 'Manual'.
- There is a material with the milestone type set to a Depends on… setting but the Issue Method is 'Backflush'.
- There is an outsourced operation that is not set as a 'Milestone'.
- There is an unfinished product with 'Manual' issue method.

BxID

Internal identification value.

Rejected Warehouse

Add the warehouse code where the rejected unfinished products or by-products will be stored to this field to the respective lines. For MultiBranch company databases the add-on validates if the rejected warehouse is in the same branch as the branch defined for the bill of materials row warehouse.

4.3.2. User Defined Fields

Milestone type

To set a milestone for the product, use the ‘Milestone type’ UDF on the BoM. As the product is never an operation, it makes no sense to set the milestone type as ‘Milestone’. When set as ‘Depends on…’ it is always connected to the last operation of the BoM.

Calculation Base Quantity

The Calculation Base Quantity is an estimated quantity of a typical production order created from the BoM. This number is used when the setup and shutdown costs are calculated for a single unit of product. For more information please see: Cost calculation

Rejected Warehouse

Defines the warehouse used for rejected main products. For MultiBranch company databases the addon validates if the rejected warehouse is in the same branch as the branch defined for the bill of materials header warehouse. Keep in mind that SAP B1 does not validate branch consistency for BOMs; it validates for production orders but not for BOMs. This is why the add-on introduced a new Master Data Configuration Setting named “BOM Branch Validation Level”.

Is Auto Roll

If set to ‘Yes’ the due date and time of an MTO child order is automatically aligned with the begin date and time of the parent production order. This setting is only taken into account if the ‘Auto Roll child MTOs’ option is enabled on the MTO tab of BX Core settings.

BxID

Internal identification value.

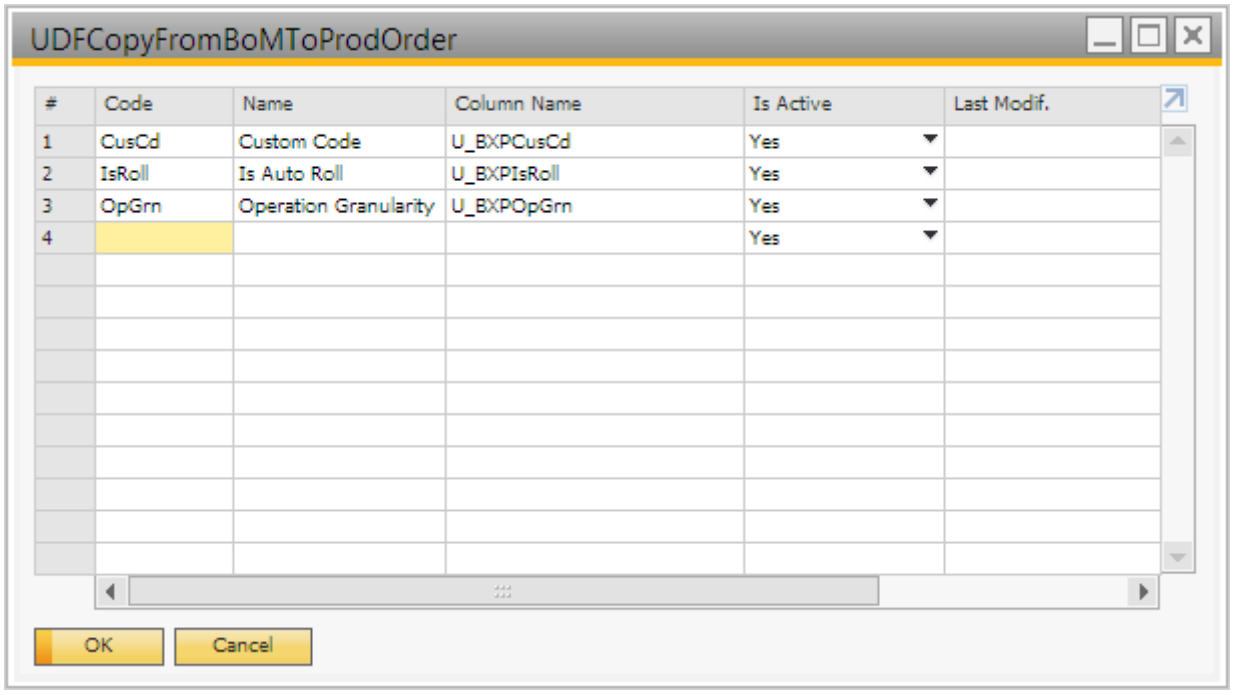
Operation Granularity

The operation granularity value impacts the allocation algorithm. The quantity produced in the operation during the allocation must be a multiple of this value. If the operation granularity value is set to zero, the allocation can be continuous.

Custom Code

On the 'Custom Code' field a generic BoM code can be added. This code can contain letters and numbers.

By default the production order created from the BoM only inherits the 'Milestone type' and 'Rejected Warehouse' UDFs. In order to copy other UDF settings to the production order, set the UDFs on the *UDFCopyFromBoMToProdOrder* table.



4.4. Production order

Production orders also inherit the Produmex Manufacturing extension settings from their base Bill of Materials. For production orders other extensions are available, including *'Milestone Groups'*, *'Due Time'*, and *'Allocation Strategy'*.

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The ‘Milestone type’ field can have five values:

- *None*: The milestone is turned off.
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For the depending line the issue type must be ‘Manual’ while for operations it must be ‘Backflush’. Outsourced operations must be set to milestones and the issue method for an unfinished product must be set as ‘Backflush’. To set a milestone for the product, use the ‘Milestone type’ column on the BoM.

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Add the warehouse code where the rejected unfinished products or by-products will be stored to this field to the respective lines. For MultiBranch company databases the add-on validates if the rejected warehouse is in the same branch as the branch defined for the bill of materials row warehouse.

Milestone groups

Production orders inherit the milestone type from the base BoM. An additional ‘Milestone Group’ field is added to the production orders which contains the code of the operation the line belongs to. This field is automatically set by the add-on based on the milestone settings and it cannot be changed manually.

Allocation error

Operations with allocations errors are indicated with an icon on the ‘Row Image’ field.

Due Date & Due Time

After the production order is added/updated, an advanced MRP runs in the background and calculates the due dates and times the operation must be finished/ the material must be available.

Manual Planning

Defines whether this line is taken into account by the MRP logic or not.

MRP result

On operation lines indicates whether there is an error with the allocation or not.

MTO scenario

If the production order is a part of an MTO chain and its subassembly line has an MTO production order, the MTO scenario code is displayed on this field on the line of the subassembly.

Operation Reference

In material lines it shows the BX ID of the linked operation. In operation lines it shows the BX ID of the next operation.

Planned Outsourced Quantity

The planned outsourced quantity of an unfinished product.

Completed Outsourced Quantity

The completed quantity of the unfinished product received from the subcontractor.

Rejected Outsourced Quantity

The quantity of an unfinished product that was booked as ‘Rejected’ by the quality inspector.

Completed Quantity

The completed quantity booked with PDC for an operation.

Rejected Quantity

The quantity booked as ‘Rejected’ with PDC for an operation.

4.4.2. User Defined Fields

Milestone type

To set a milestone for the product, use the ‘Milestone type’ UDF on the BoM. As the product is never an operation, it makes no sense to set the milestone type as ‘Milestone’. When set as ‘Depends on…’ it is always connected to the last operation of the BoM.

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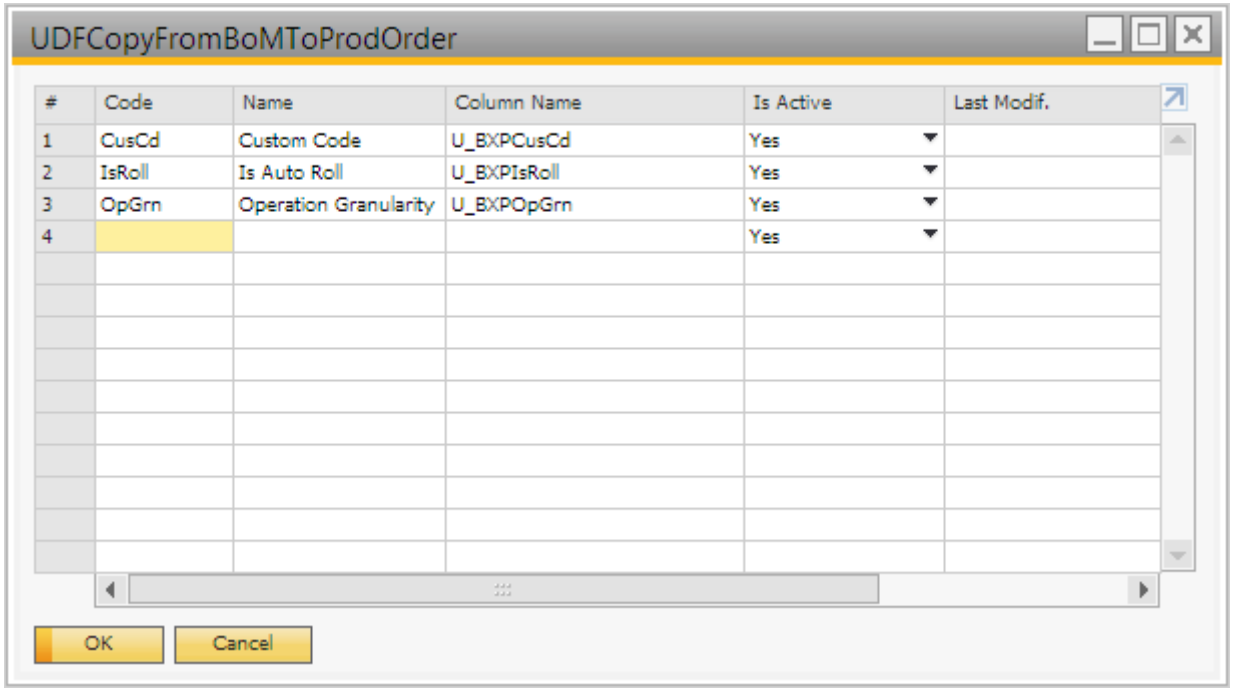
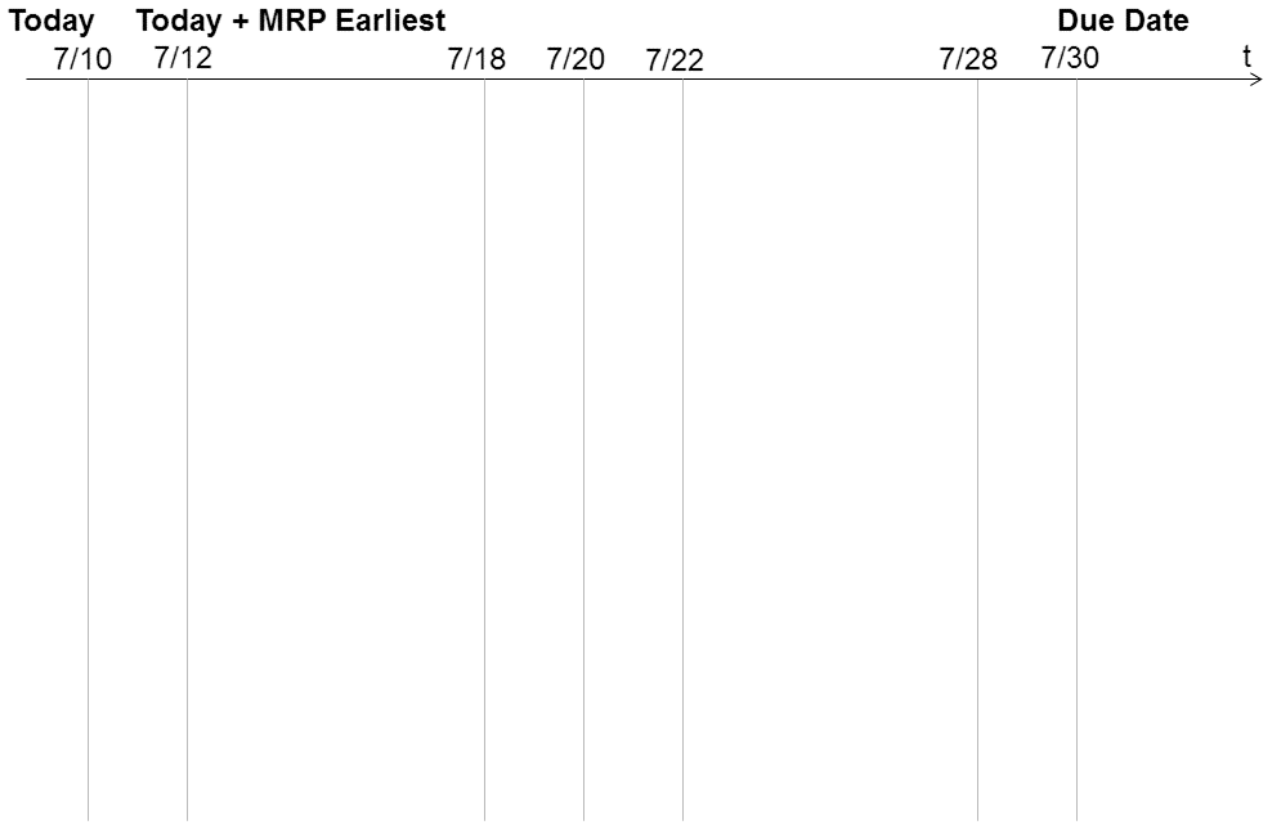


Allocation strategy

On the 'Allocation Strategy UDF' the scheduling logic for allocations can be defined. The default the allocation strategy depends on the *'Default ProdOrd. Allocation Strategy'* set on the Production order tab of Produmex Manufacturing settings.

There are three possible values:

- ***Back From Due Date***: The system starts the allocation from the Due Date of the Production Order and the last operation. Resources are allocated backward.
- ***Forward From Preferred Date***: The preferred date is calculated from the due date, the total duration of the production order and the safe completion factor defined on the MRPProdOrderSafeComplFactor field on the MRP tab of Produmex Manufacturing settings.
- ***Forward From Earliest Date***: The earliest start date is calculated based on the Minimal delay for begin setting, the Document Date of the production order and the material availability determined by the material flow. The add-on starts the allocations from this date and schedules the operations forward starting with the first operation of the production order.



When using forward scheduling, the End Date/Time of the production might be later then the due date. In this case a warning will appear when creating/updating the production order.

Due Time

Produmex Manufacturing extends the production order Due Date with a time component. With the Due Time production planning is detailed at the time of day level.

Force Reallocation

To recalculate the allocations for the production order, set the 'Force Reallocation' option to 'Yes' and click update. After the reallocation, the value will be set back to 'No'.

Scheduling dates and times are displayed on UDFs that can be overviewed under the *'Allocation'* category among the allocation message and state.

Under the *'Outsourcing'* category outsourcing parameters of the production order can be seen.

Under the *'Planning'* category key planning dates and times of the production order are displayed.

Under the *'Technical'* category information about the parent order (if any) and other technical details can be overviewed.

Under the *'General'* category production comments, missing capacity information and MTO details are indicated.

4.4.3. Right-click menu

Allocation status

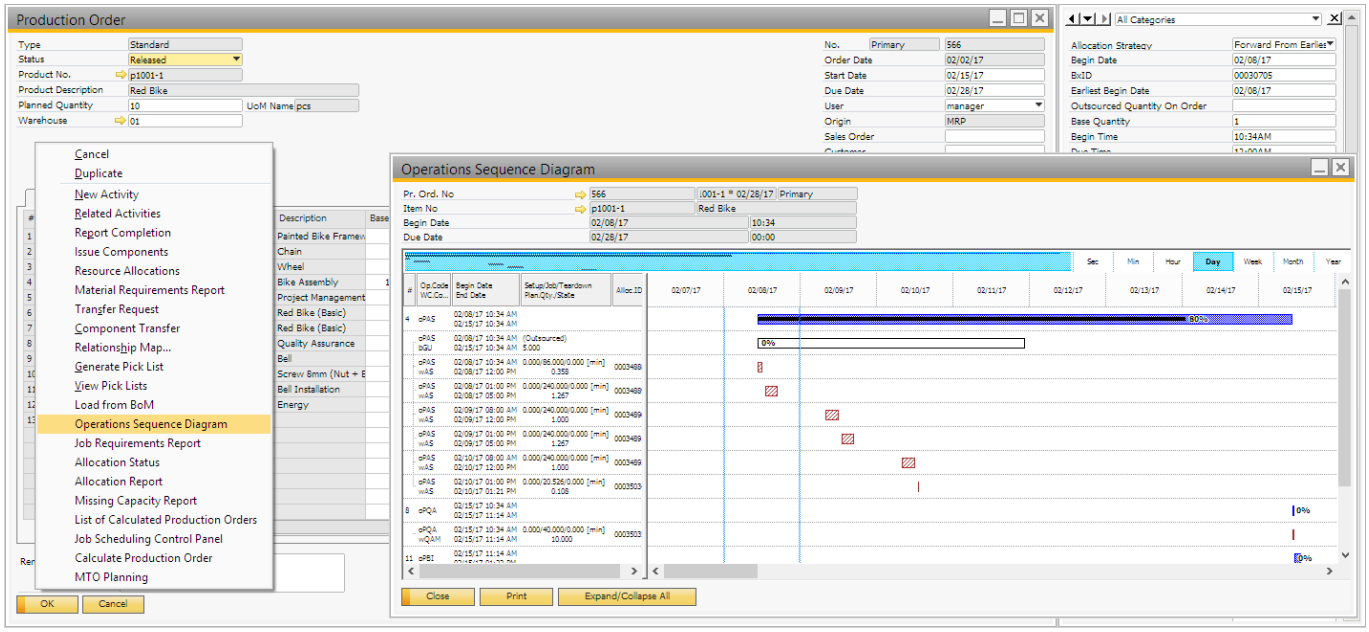
To see the list of allocation errors for the production order after the creation or an update, select the *'Allocation status'* option from the right-click menu. On the opening *'System Message'* form allocation errors will be listed.

Operations Sequence Diagram

To review the schedule/planning/allocations of a single production order, open the 'Operations sequence diagram' form. The form can be reached from the right-click menu of the production order.

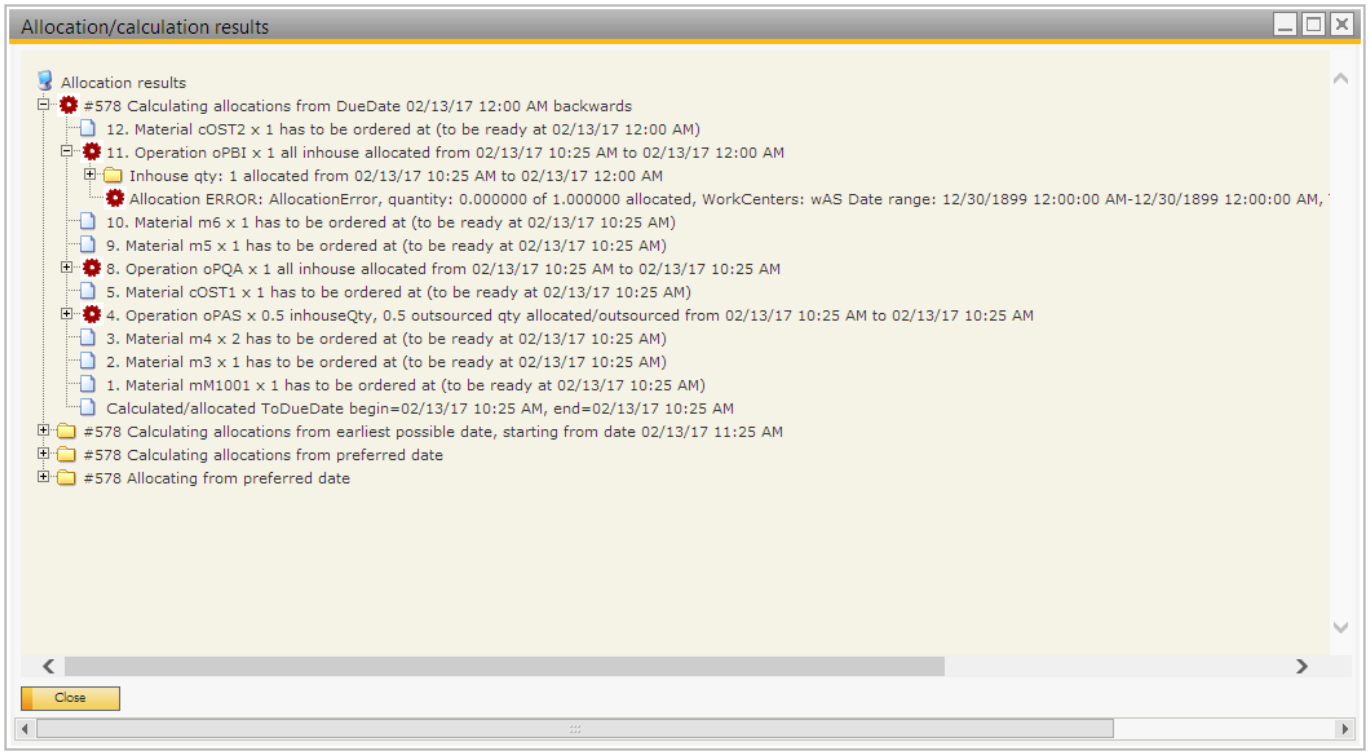
On the form the operations of the production order are displayed in the required order with the work center allocations and the completion percentage.

When a production order is in *'Planned'* status, no actual work center capacities have been allocated for its operations. Still, in this status an operation sequence diagram can be shown by right-clicking the production order form. In the operation sequence diagram for a planned production orders the work center allocations are only temporarily made; a kind of simulation.



Allocation Report

After a production order has been created or updated, the Allocation/calculations results report can be opened from the right click menu to overview the allocations. The red cog indicates an allocation error where the system could not allocate enough capacity for the operation.



Job Requirements Report

For more information please see: Requirements Report

Material Requirements Report

For more information please see: Requirements Report

Missing Capacity Report

On the missing capacity report operations from the production order are listed if the total capacity needed for the operation is not available. Select a line and click on the 'Job Scheduling Control Panel' button to see the work center in question on the control panel.

Resource Allocations

For more information please see: Resource Allocations. Please note: As 'Planned' production orders do not have permanent allocations, the allocation report is not available for 'Planned' production orders.

Job Scheduling Control Panel

For more information please see: Job Scheduling Control Panel

Calculate Production Orders

For more information please see: Cost calculation

List of Calculated Production Orders

For more information please see: Cost calculation

MTO Planning

For more information please see: MTO Planning