# 3. Production

## 3.1. Bill of Materials

***Is base component***
Is the current ingredient the base component of the product to produce? *(Informational)*
This is also used in combination with the 'Scan base component' option on item master data.
During picking the user will be asked to scan the barcode of this base component when picking the master item.

***Has to be lined up***
Does this component need to be consumed from a lined up location?

***Qty tolerance %***

The quantity tolerance allows flexibility in material usage, enabling slight variations either more or less within a specified percentage range. If there is not enough raw material, the system blocks the receipt from production and displays an error message.

#### 1. Work Order Header (OWOR)

The work order (OWOR) is created from the Bill of Materials (BOM) and defines what and how much should be produced.

**Production Order header - OWOR - Product item:**

| Column Description | Column Name |
|---|---|
| Planned Quantity | OWOR.PlannedQty |
| Completed Quantity | OWOR.CmpltQty |

**Planned Quantity**

- The target quantity to be produced.
- Defined when the production order is created.

**Completed Quantity**

- The quantity that has already been produced and received into stock.
- This value increases with each receipt from production.

#### 2. Production Order Lines – Raw Materials (WOR1)

The raw material components required for production are stored in the WOR1 table. Each line represents one raw material from the BOM.

**Production Order lines - WOR1 - Raw material items:**

| Column Description | Column Name | | Comment / Calculation formula |
|---|---|---|---|
| Base Quantity | WOR1.BaseQty | | |
| Planned Quantity | WOR1.PlannedQty | = | OWOR.PlannedQty * WOR1.BaseQty |
| Quantity Tolerance Percentage | WOR1.U_PMX_QTYTOLPCT | | |

**Base Quantity**

- Defines how much raw material is required per 1 unit of finished product.
- **Example:**
  - 10 breads planned to be produced.
  - 1 kg bread requires 0.7 kg flour
  - Base Quantity = 0.7 kg

**Completed Quantity**

- The planned raw material requirement for the entire production order.
- **Planned Quantity** = OWOR.PlannedQty × WOR1.BaseQty

**Quantity Tolerance Percentage**

- Defines how much under- or over-consumption is allowed for the raw material.
- Maintained via the Produmex PMX feature.
- Expressed as a percentage.
- **Example:**
  - 10% tolerance: That means the users may consume up to 10% less or more than the calculated requirement.

#### 3. Touch Client

This section applies when the user posts a receipt from production in the Touch Client.

**Touch Client - Receipt from production script:**

| Steps | Variable Names | | Comment / Calculation formula |
|---|---|---|---|
| Entered Quantity to Produce | EnteredQtyToProd | | (entered by user) |
| Available Quantity of Raw Material | AvailableQty | | (queried from stock) |
| Allowed Deviation | AllowedDeviation | = | (OWOR.CmpltQty + EnteredQtyToProd) * WOR1.BaseQty * (1 - WOR1.U_PMX_QTYTOLPCT / 100) |
| Missing Quantity of Raw Material | MissingQty | = | AllowedDeviation - AvailableQty |

> **IF MissingQty > 0 THEN ShowErrorMessage**

### Entered Quantity to Produce

- The quantity the user currently wants to produce.
- Manually entered by the user.
- **Example:**
  - User enters 10 breads to produce in this transaction.

### Available Quantity of Raw Material

- The current stock quantity of the raw material - the system using free stock that available at the storage location where production takes place (if there is free stock elsewhere in the warehouse, it does not count).
- Retrieved automatically from inventory.
- **Example:**
  - Available flour in stock = 6 kg (Also referred to as CurrMaterialStock in some contexts.)

### Allowed Deviation

This is the core logic that ensures production is allowed only if sufficient raw material exists within the allowed tolerance.
**Allowed Deviation** = (OWOR.CmpltQty + EnteredQtyToProd) × WOR1.BaseQty × (1 - WOR1.U_PMX_QTYTOLPCT / 100)

- **Example:**
  - Total produced: 10 breads
  - Base Qty: 0.7 kg
  - Tolerance: 10% (the base quantity can be between 0.63 kg - 0.77 kg)
  - Minimum required flour: 10 × 0.7 × (1 - 0.10) = 6.3 kg

### Missing Quantity of Raw Material

This value checks whether enough raw material exists.
**MissingQty** = AllowedDeviation - AvailableQty

- If MissingQty ≤ 0 → sufficient material available
- If MissingQty > 0 → not enough material, the system shows an error that raw material stock is insufficient
- **Example:**
  - Minimum required (allowed deviation): 6.3 kg
  - Available: 6 kg
  - MissingQty = 0.3 kg

***Is the item optional***
Set wether the component is optional. If set to true, this component is not required to produce.

***Prod. Order start condition***

- N = No condition
- Q = Component part. weighed
- W = Component weighed

These are the start conditions of a production order. The requirements need to be met, before the production order can be started.

***Best before date option***
This is used when picking for production. It configures the way the system should calculate a valid best before date for the ingredient. Possible values:

- BBD of finished product and shelf life: Take the BBD defined on the production order + shelf life of the ingredient.
- Due date and shelf life: Take the due date of the production order + shelf life of the ingredient
- Pick date: Take the date when the picking occurs or in case of pick lists for production the creation date of the proposal.

***Allow to pick for line up? (True/False)***
If enabled for a component that has to be lined up, the component can be consumed from every lined up location assigned for the production line, otherwise it can be consumed only from the assigned lined up locations with stock for the item.

Such a component will be added to the pick list (proposal) for production or can be picked for production. When moving the components to the production line, it will be moved to the lined up location selected for the component.

When the 'Direct consumption of goods' option is enabled for the lined up location the component is consumed, the component will be automatically issued when the product is received, therefore it will not be listed among the other components on the *Production Manager – Stop screen*. However, it the *'Allow to pick for line up setting'* is enabled for the component, it is possible to issue more than the planned quantity, therefore the component will be listed on the Stop screen of the Production Manager.

***Weighing needed? (True/False)***
Set whether the component must be weighed or not. When creating a weighing order, only components, that have the *'Weighing needed?'* setting enabled, are added to the weighing order.

***Weigh order batch quantity***
Add number of batches for the weighing order. If the quantity is greater than 1, the planned quantity of the item to be weighed will be split into multiple weigh order lines. The number of lines is defined by the *Weigh order batch quantity* value.

***Batch attribute & Batch attribute value***
This is used when picking for production.

If certain batch attributes need to be picked for production, select the batch attribute type from the dropdown menu in the Batch attribute field. Every batch attribute defined on the Batch attribute types

user table can be selected. Then enter the given value to the *Batch attribute value* field. You can add up to three batch attribute per line.

On the production order, you can also add batch attributes by selecting the ‘Batch attributes’ option from the right-click menu of the line. On the opening Batch attributes control screen you can select the batch attribute type and add/select the batch attribute value.

If a batch attribute is defined for a production line, the stock that can be picked is filtered based on the batch attribute.

## 3.2. Production order header

***Produmex production status***
Next to the status of SAP, there is the Produmex production status.
*Possible values: Planned, On hold, Started, Closed*

***Production step list***
Next to the item to produce, the user can select a steplist.
The requirements to select a steplist:

- One or more steplists for the item to produce needs to be configured
- The production type needs to be ‘Special’

When a step list is selected, a list of components is created according to the selected steplist.

***Production line***
Next to the warehouse, the user can select the production line where this production order needs to be produced. Only the production lines in the warehouse are shown.

## 3.3. Production order lines

The extra fields added to the BOM, are also added to the production order. When creating a new production order, the Produmex add-on will copy the data from the BOM to the production order in case the UDF’s are named the same.

The following fields are used for picking for production: *(And not for Pick List for production)*

***Quantity picked***
The quantity that already has been picked for this component.

***Batch(es) to pick***
If a certain batch needs to be picked for this production order, this column needs to be filled with the batch to pick.
When multiple batches are required, those batches can be entered with a pipe as separator: '|'

## 3.4. Production issue lines

***Is waste?***
Is this line registered as waste?

***The production batch***
This stores the production batch this line was issued for.