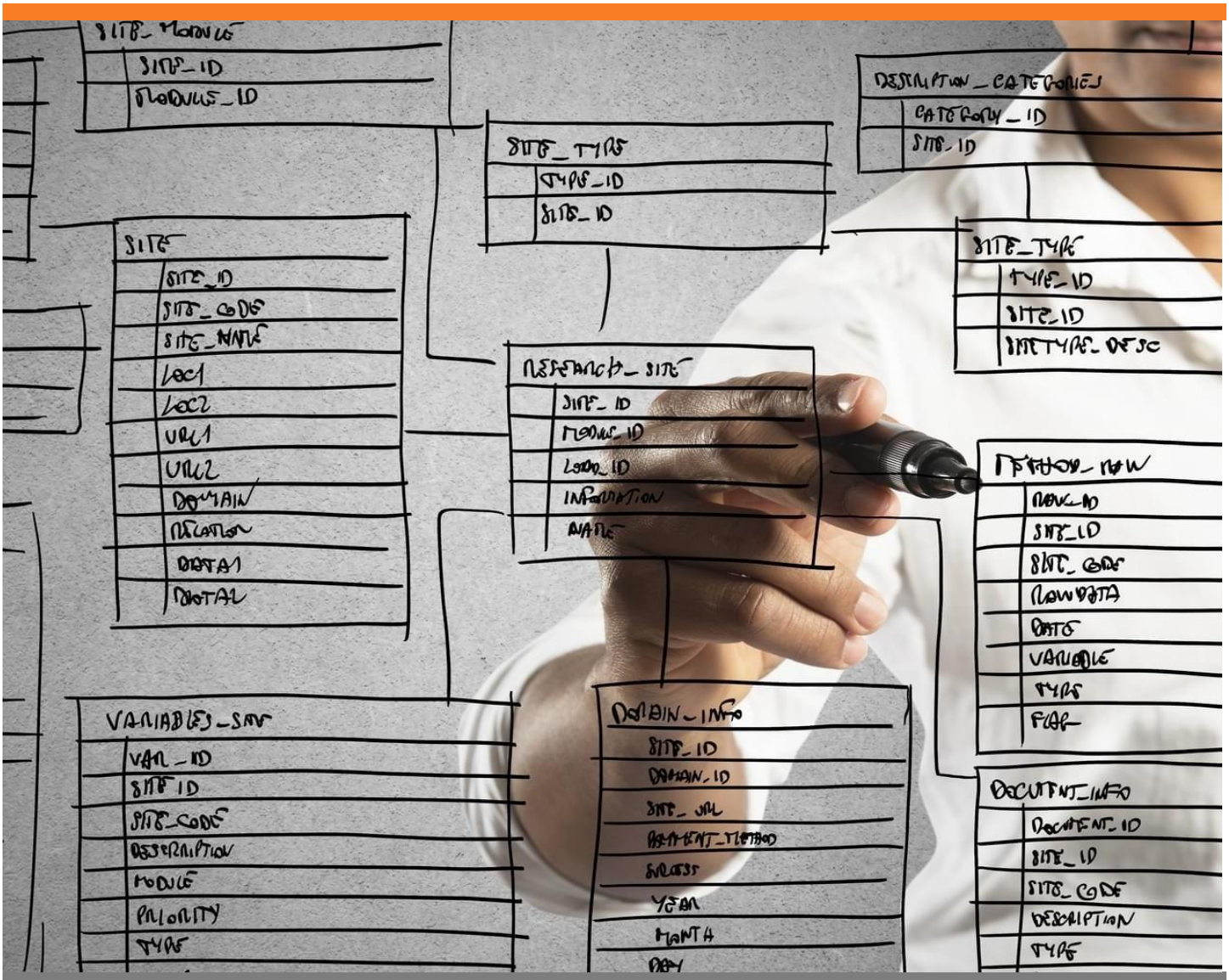

Quality Control Plans

Overview of the quality control process data

Adrienn Miklós - Boyum IT

Beas tutorial

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1. INTRODUCTION

Quality Control Plan is a module included in the Beas basic license that enables you to set up and perform a quality control process with measurements and inspections. These measures ensure that the materials meet the requirements and specifications of customer products.

This tutorial is a high-level overview of the Quality Control process in Beas for the most common scenarios. This tutorial provides:

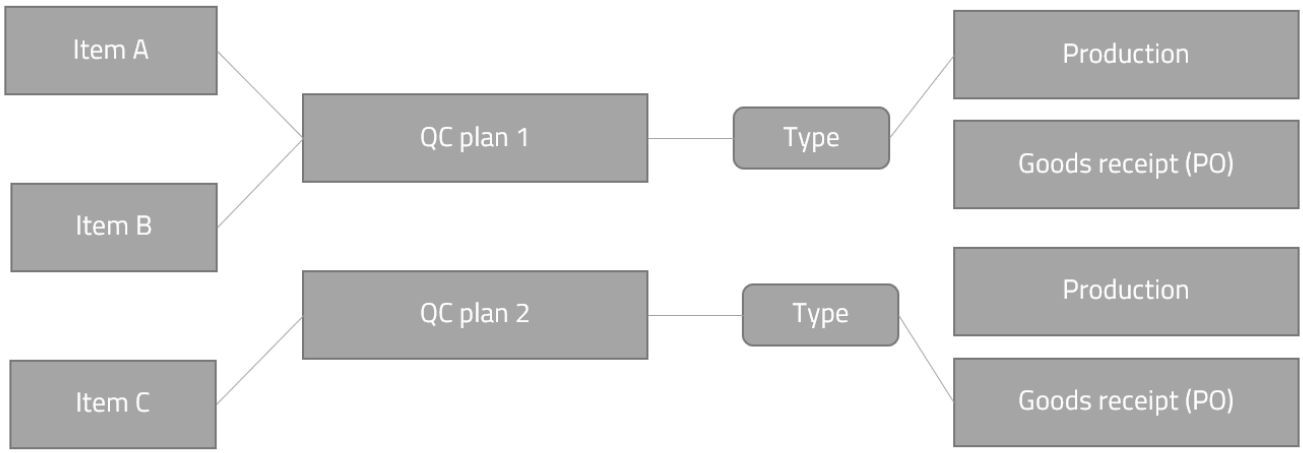
- General overview of the QC process
- Explanation on fields impacting the QC Process based on a QC plan
- Overview of a QC Plan

The Beas Quality Control module is focused on processes. With the Quality Inspection plan as a base, you can create quality control orders based on the following:

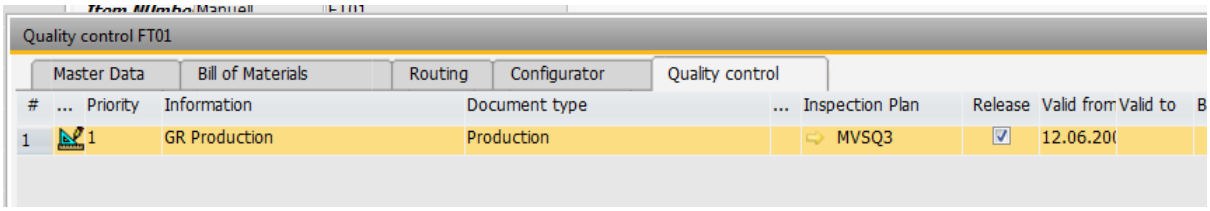
- Good receipts for purchase or production items
- Operations of the production process

The QC Plans can be set up in the item master data for all items where quality control is required.

It is possible to link more items to a quality control plan and to add more than one quality control plan for an item. For example, Item A in the image has a quality control plan assigned for the finished product, so it is of type production.



This can be set in the Quality control tab of the item master data.



Based on the quality control plan setting, the system generates the QC order, in the above example for Item A, when the production is finished.

2. QUALITY CONTROL PROCESS TYPES

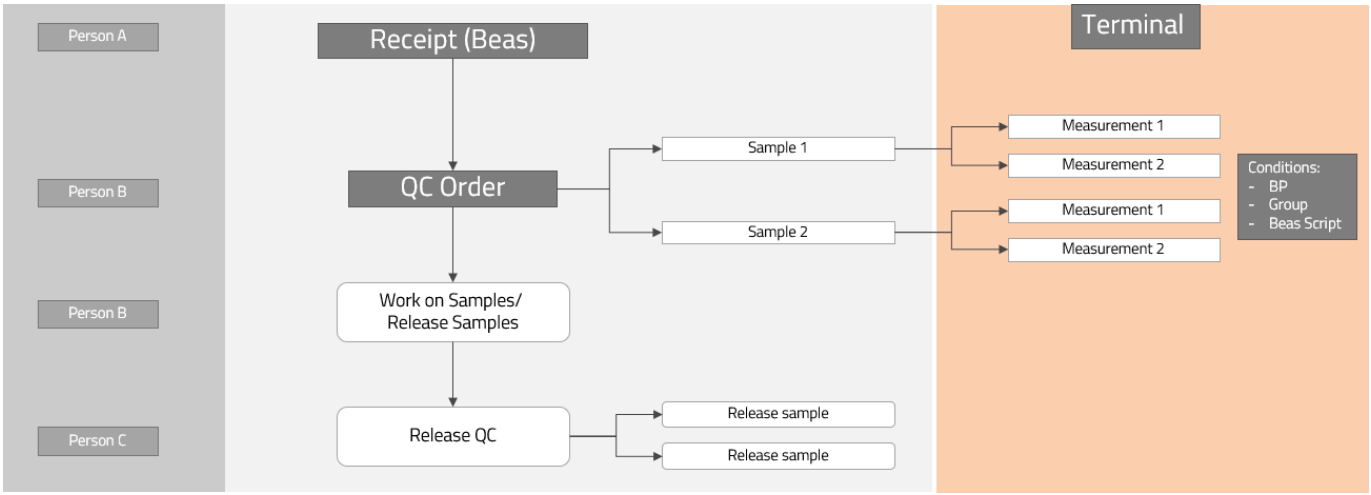
Quality control plans can be set up for the production or goods receipt processes.

2.1. Goods receipt with QC

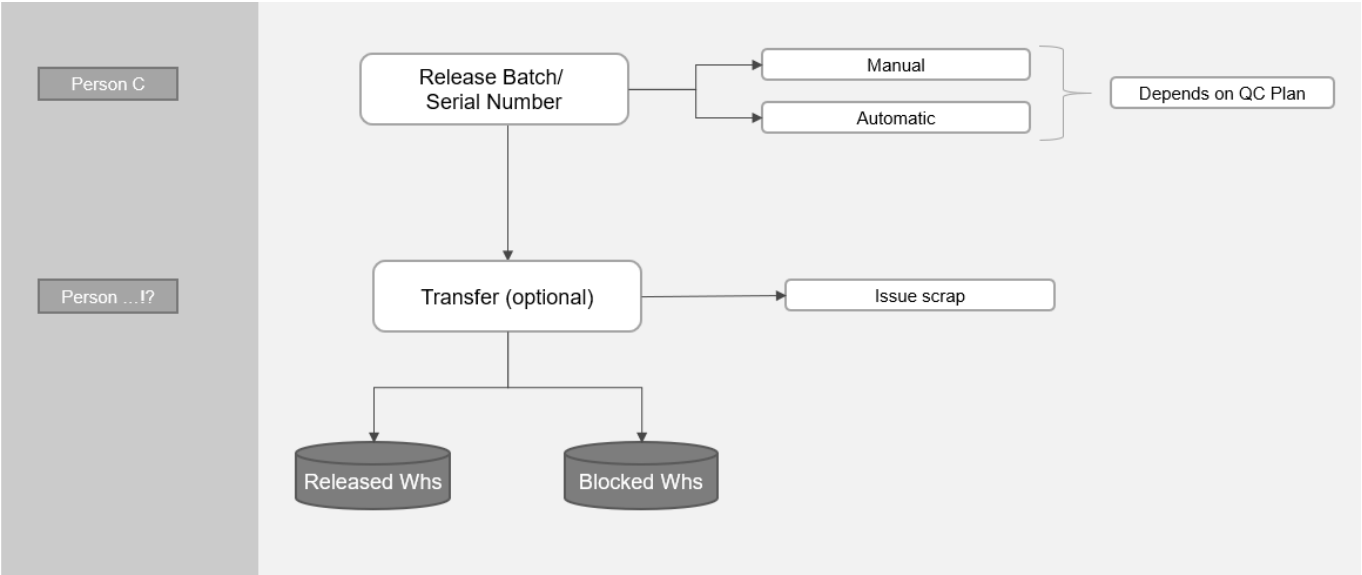
This process can be set up for purchase or production items.

In this case a QC Order is generated based on the QC plan setup of the item master data, as soon as a good receipt is issued based on purchase items. According to the sample and measurement setup in the QC plan, open sample and measurement positions are created that must be checked and released.

For batch or serial numbers items, an automatic link is created. After releasing the measurements, samples and the QC order itself, the batch and serial numbers can also be released for next step in the process or for shipping, in case of a finished product.

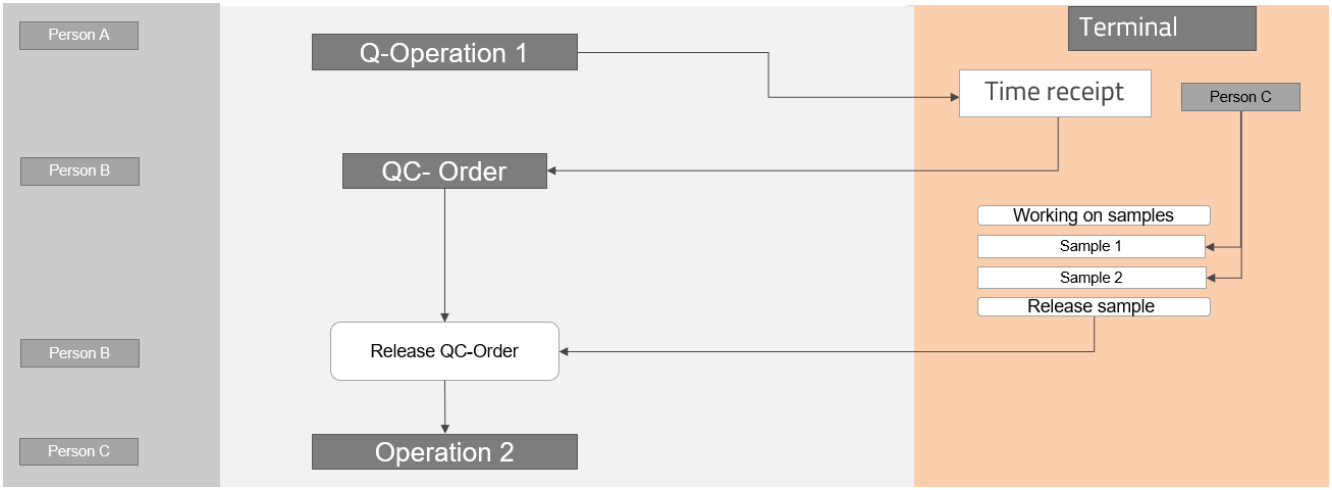


The various release steps can be performed by different personnel. If you want to work with additional warehouses, like a scrap or QC warehouse, a transfer can be completed from the QC order to each of these warehouses.



2.2. Time receipt in production with QC

In this case the QC Order is generated during the production process. The QC plan must be linked to a routing. Based on three options in the Configuration Wizard the system can generate QC orders automatically to the routings. See *Configuration Wizard* for details.



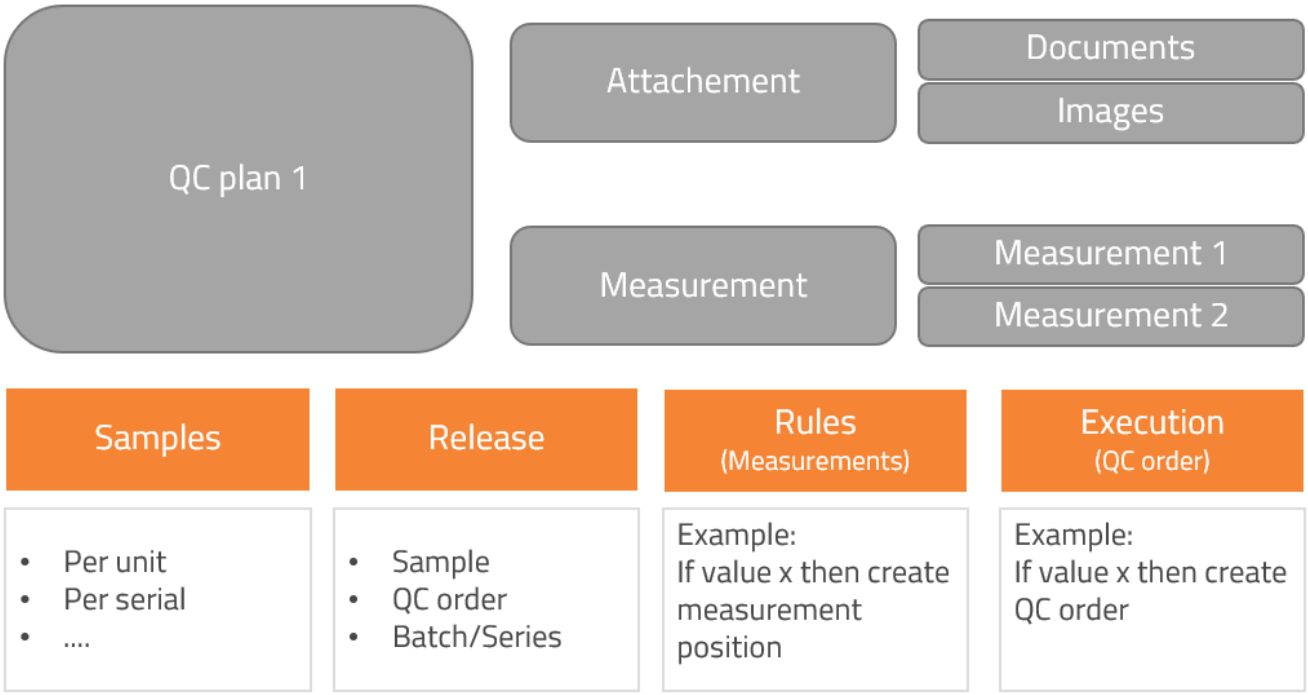
With an additional option in the Configuration Wizard, it is possible to avoid starting an operation which follows a QC operation with a QC order that is not released (FDC rules).

3. CREATING A QC INSPECTION PLAN

The Quality Control Plan is set up in the quality control module.

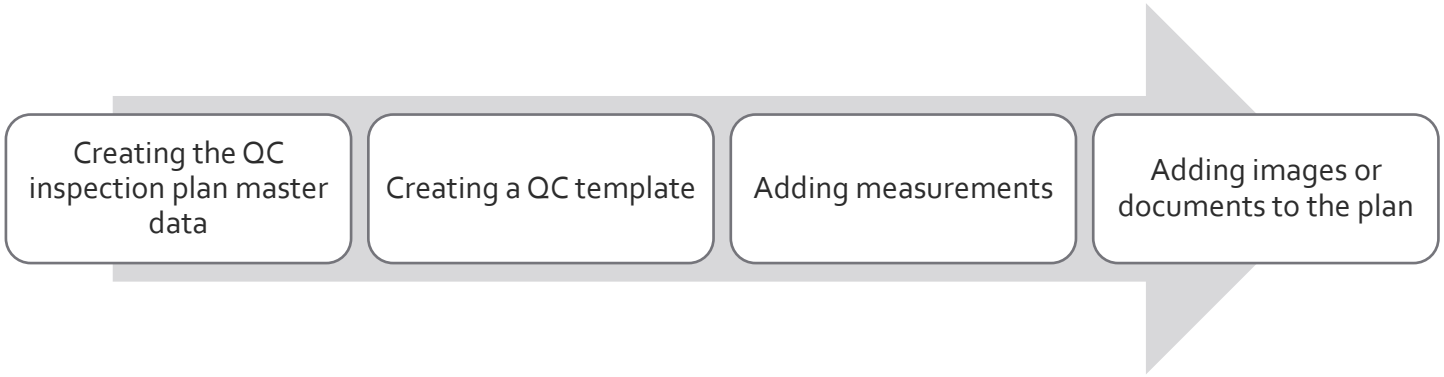
Production > Quality Control

A QC plan can contain attachments, measurements, different release and execution conditions.



In a QC inspection plan setup, the behavior of the generated QC order, the samples and measurement positions are defined.

The basic process of defining the plan is as follows:



3.1. Creating the master data of the QC inspection plan

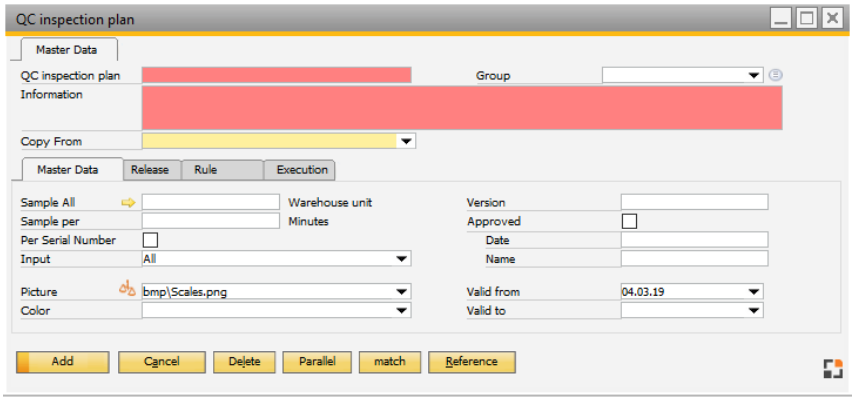
1. Open the QC inspection plan screen.

   Production > Quality control > QC inspection plan

   All available QC plans are displayed. Plans can be edited, deleted and new plans can be set up.

   Plan deletion is only possible if the plan is not used in an item master data or an existing QC order.

2. Click the **New** button.



3. The QC inspection plan name and Information fields are mandatory. For complete field descriptions, see the *Master Data tab*.
4. Click the **Add** button to save the plan.

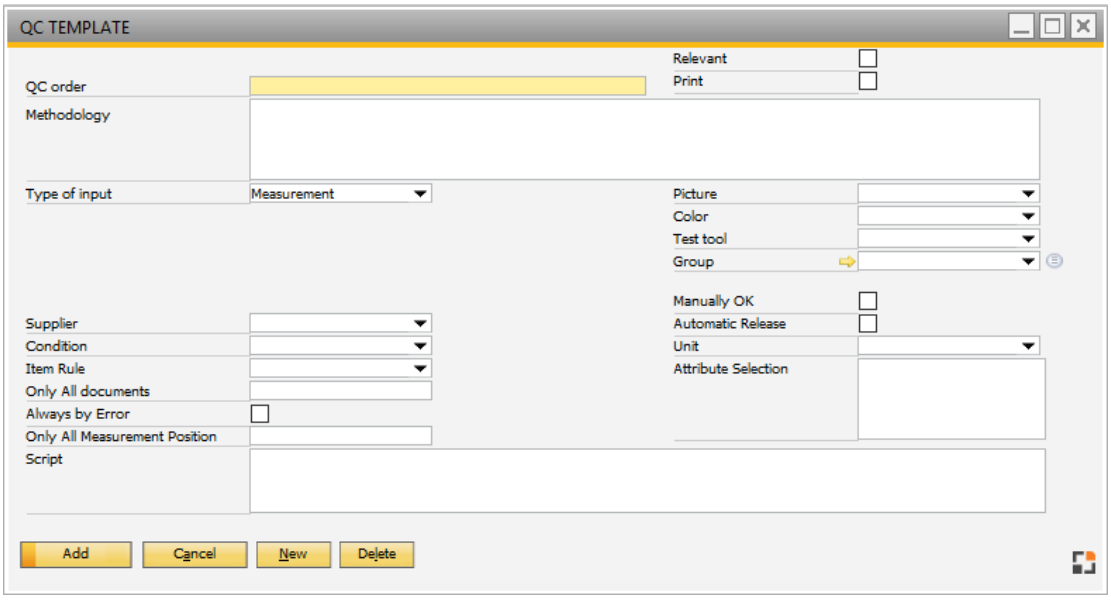
3.2. QC templates for measurement positions

Production > Quality control > QC templates

A list of predefined measurements for quality control are displayed on this screen. These are the available measurements to choose from in a QC plan.

To create a new measurement:

1. Click the **New** button.



2. Insert the required information.

   The type of input defines the QC process:

   - *Measurement*: Value is checked between a minimum and maximum value.
   - *Attribute*: A measuring position can be marked as okay and a value can be entered, but it is not checked.

- *Text*: The position is only displayed, there is no confirmation or data entry.

After the template is added, this measurement template is available to select when a new QC inspection plan is created.

3.3. Creating measurement positions in QC plans

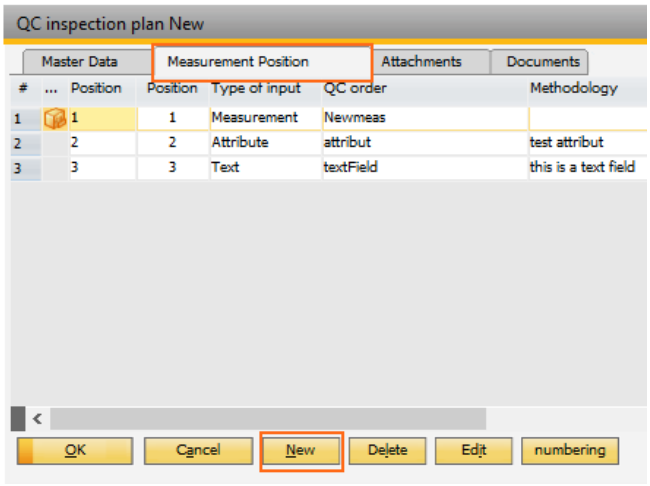
In a QC order, individual measurement positions can be created that are related to samples. These positions are set up in the QC inspection plan, under the Measurement Position tab.

Production > Quality control > QC inspection plan

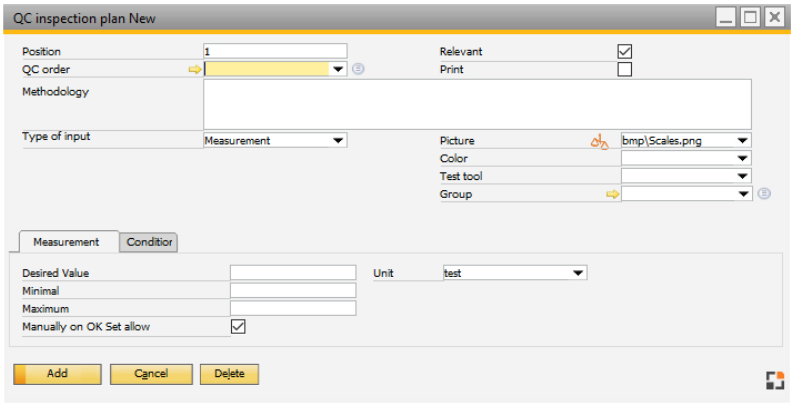
Before creating a new measurement position, create a QC template. See *QC templates for measurement positions*.

To set up a measurement position:

1. Open the QC inspection plan to edit.
2. Go to the Measurement Position tab and click the **New** button.



3. In the QC order field add the required QC template. Depending on the template, new fields become available. For a complete field description, see *Measurement Position*.



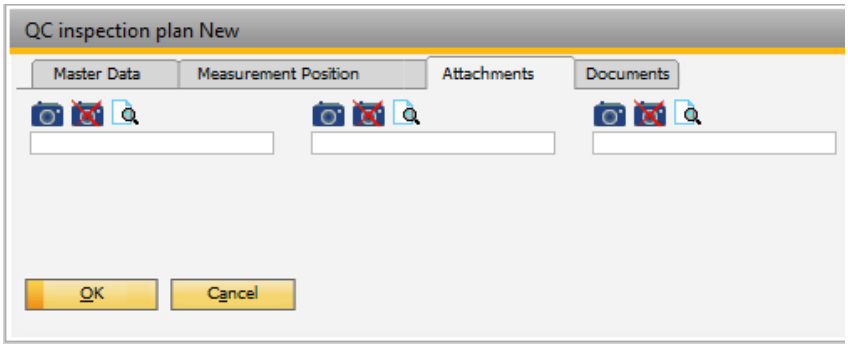
4. The measurement position can be set as *Relevant*.
   The measurement is checked at release if *Relevant* is marked. For Text type measurements, this is disabled.

Note: For an automated release process, at least one *Relevant* measurement position is required.

3.4. Attachments and documents

Production > Quality control > QC inspection plan

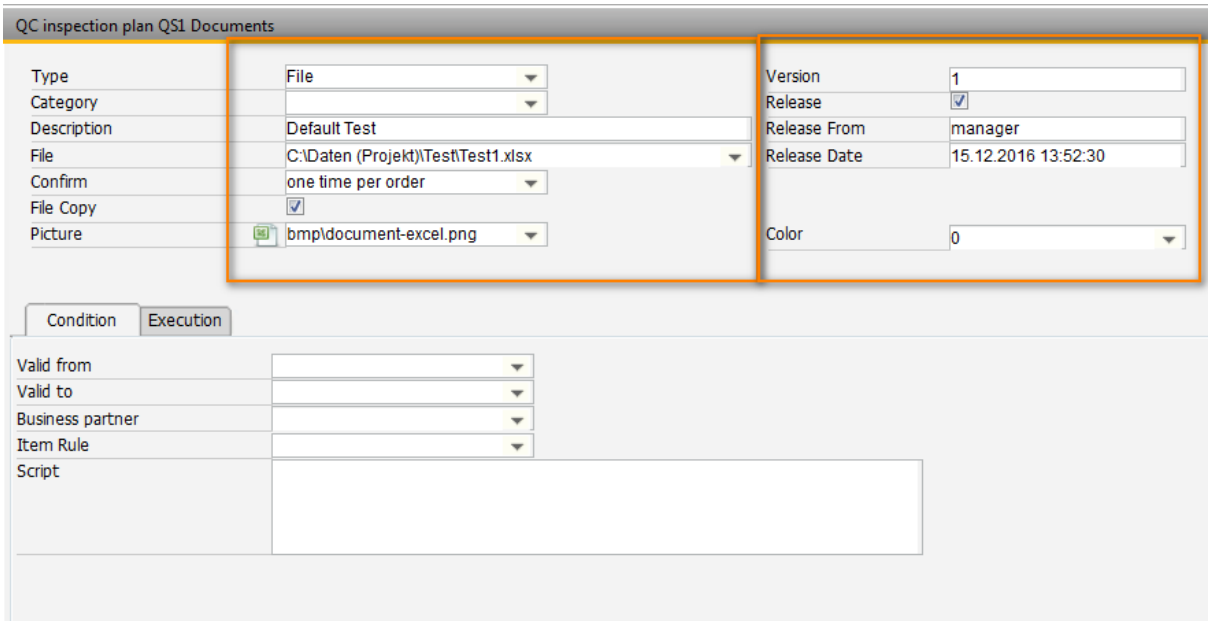
Up to 3 images can be attached to a QC plan. Click on the camera icon to select a picture, which is then displayed on the screen. The added images can be printed on QC documents.



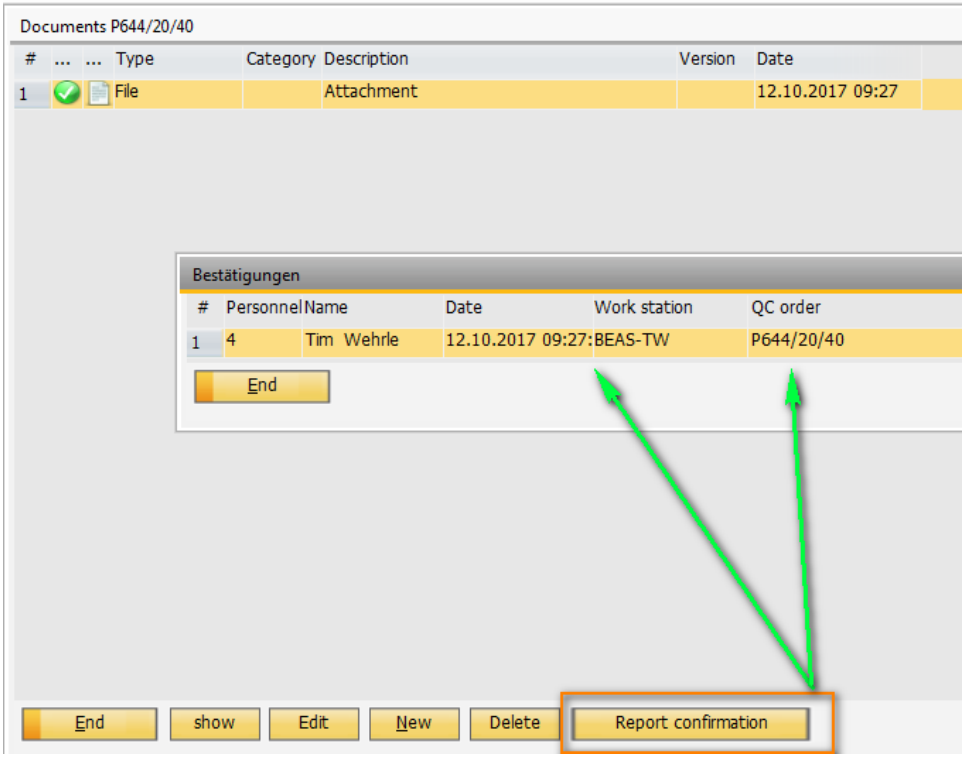
Documents (PDF, Word and Excel, and so on) can be added to an inspection plan. These documents can be opened from the created QC orders. To attach a new document, click the **New** button.

1. Select the type of document, a category and a description.
2. Click the icon in the File field to attach the document.

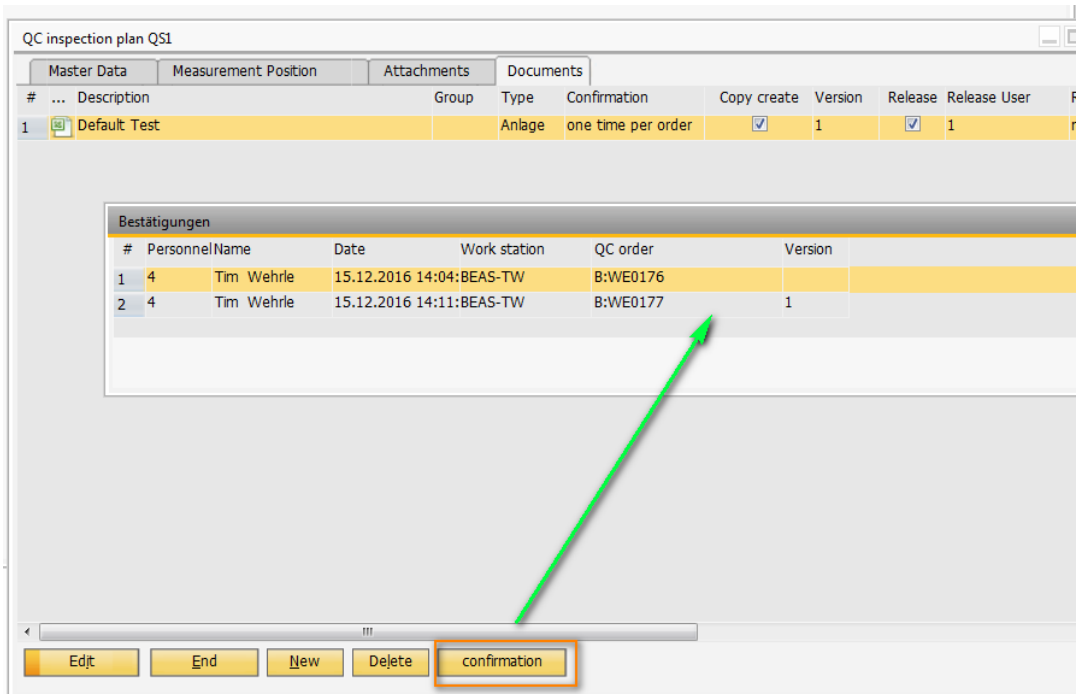
A *Release* flag can be set for the attached document by marking the checkbox.



It is possible to open and confirm these documents during the QC process. Beas saves and shows the confirmed documents when the **Report confirmation** button is used.



It is also possible to see all confirmations on a QC plan by clicking the **Confirmation** button.



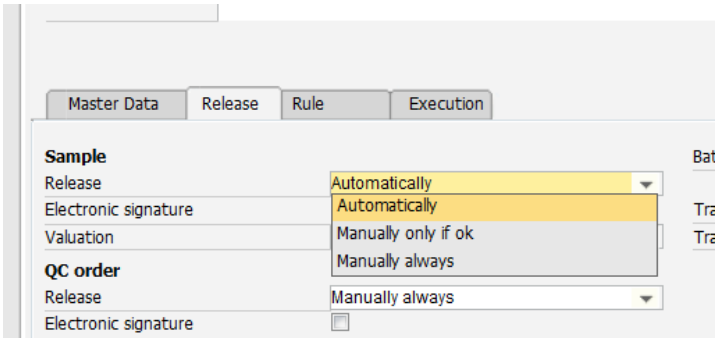
3.5. Release setting options of the QC inspection plan

Production > Quality control > QC inspection plan

The release of samples and the QC order can be set to be automatic or manual. When a manual setting is used, the individual measurement positions or the whole QC order can be released if the sample is okay.

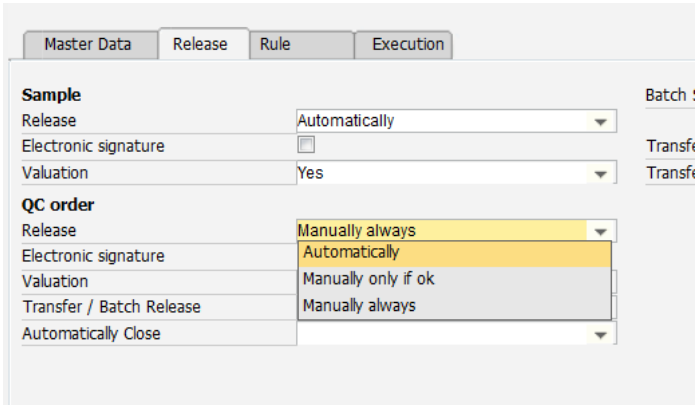
*3.5.1.*Sample release

Each sample has linked measurement positions and the release of samples is linked to the measurement positions. The setting allows to either automatically release the sample when the measurement is okay or to do a manual release.



*3.5.2.*QC order release

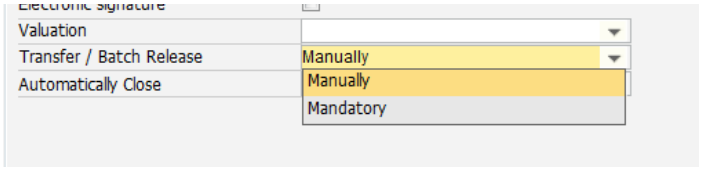
The QC order release is linked to the samples. The QC order can either be set to automatically release, when all the samples are released, or a manual release setting can also be used.



*3.5.3.*Transfer booking

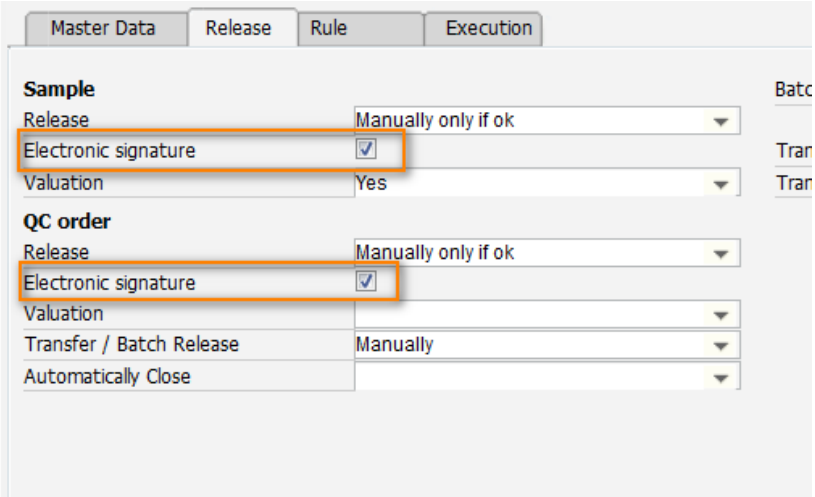
In a QC process, goods can be transferred to another warehouse after releasing the QC order. To allow this transfer any time, set the *Manually* in the *Transfer/ batch release* field. The batch status can also be released any time.

If the transfer is only allowed after releasing the QC order, set this option up as *Mandatory*.



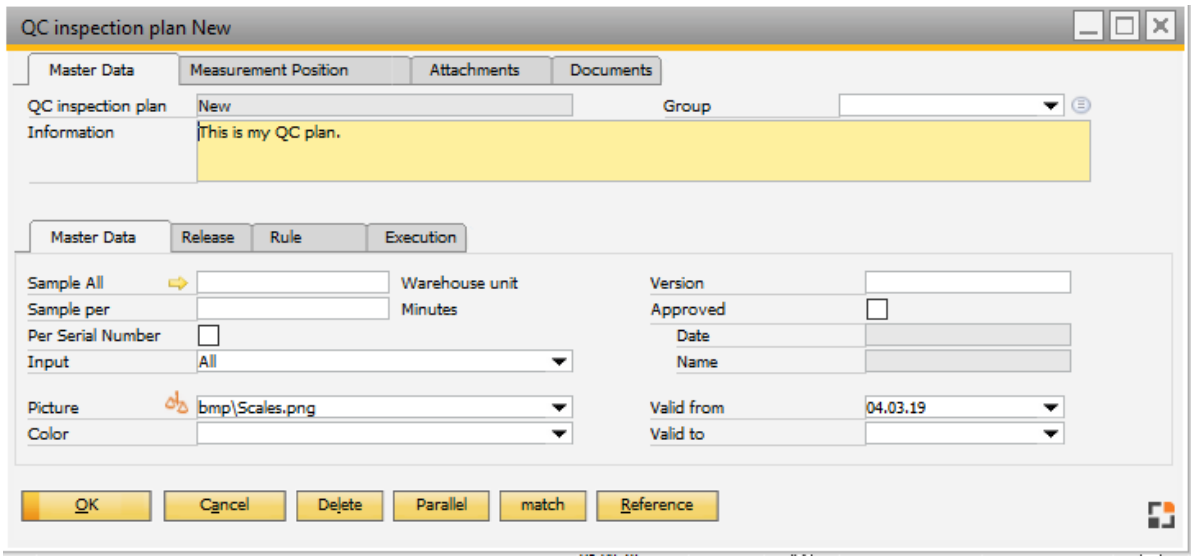
*3.5.4.*The Four Eyes Principle

It is possible to set the release of samples and QC orders in a way that an additional person must confirm the results. The person performing the inspection must enter a password, that is defined in the human resources master data. The *Electronic signature* setting enables this functionality.



4. QC INSPECTION PLAN FIELD GUIDE

4.1. Master Data tab



QC inspection plan: Unique ID for an inspection plan. This value cannot be changed later.

Group: The plans can be assigned to a group. A new group can be created, or an existing group selected in this field.

Information: The description of the plan.

Copy From: Available when a new plan is created. An existing inspection plan can be selected, from which measurement positions are used.

Sample All: Indicate how often a sample is taken. For zero value, only one sample is inserted.

Sample per: The option is only active, if the QC-inspection plan is stored in an operation. The total planned time is used to calculate the number of samples. The Sample All option is ignored in this case.

Per Serial Number: If active, a link to the serial numbers is created and the serial numbers are displayed in a new screen. The option is ignored, if the QC inspection plan is stored in an operation.

Input: This setting affects the visibility of some of the buttons.

- *Per sample:* Measurements are indicated per sample.
- *Per measurement position:* Registration of samples per measurement position-
- *All:* Both type of registrations are possible.

Picture: The icon of the plan.

Color: A color can be defined for the text of the plan.

Version: The version of the plan. Informational only.

Approved: An informational field that indicates whether the plan is supposed to be used.

Date: Release date.

Name: Personnel who released the inspection plan.

Valid from: Inspection plan valid from date.

Valid to: Inspection plan valid to date.

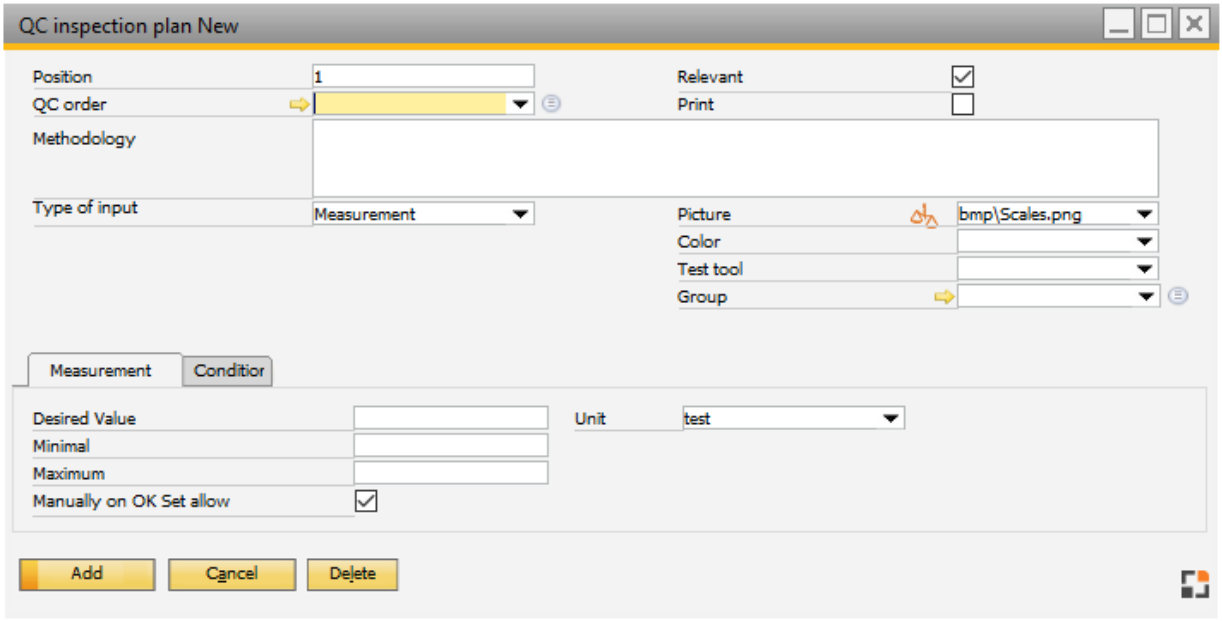
Delete: Deletion of the QC inspection plan is not possible, if the inspection plan is stored in an operation catalog, routing, item link or work order.

Parallel: Additional inspection plans can be linked to the current inspection plan with this button. If a QC-order is created for one inspection plan, a parallel QC order is created for the second inspection plan. This can be used, if several employees are working on quality control tasks that can be run parallel.

Match: All measurement positions of all samples in open QC orders are matched. All measurement positions are deleted and inserted as new. All open quality control orders without measurement results are affected.

Reference: Shows all the items that this QC plan applies to.

4.2. Measurement Position



Position: The measurement list is sorted by this number.

QC order: Link to the QC template. Use the drop-down list to select a template. After selection, the description is also transferred.

Relevant: The measurement is checked at release if the *Relevant* checkbox is marked. For text type measurements, this option is disabled.

Note: For an automated release process, at least one *Relevant* measurement position is required.

Print: This option must be activated if the measurement position should be printed in a quality control protocol.

Methodology: Long description of the measurement.

Type of input: The type of input defines the QC process:

- *Measurement:* Value is checked between a minimum and maximum value.
- *Attribute:* A measurement position can be marked as okay and a value can be entered, but it is not checked.
- *Text:* The position is only displayed, there is no confirmation or data entry.

Picture: Icon image to be displayed in lists.

Color: A color can be defined for the text of the entry.

Test tool: A test tool can be selected. This field is for information only and has no further effect.

Group: The measurement position can be assigned to a QC group.

*4.2.1.*Measurement tab

Desired Value/Minimal/Maximum: Only available for Measurement type position. The measurement position is released when the measured value lies within the accepted range that is set up here.

Manually in OK Set allow: Allows manual override of the measured value, even if it is out of range.

4.2.2. Condition tab

Business partner: Restricts the measurement position of the plan to a selected business partner.

Condition: The measurement position is only created if the condition is met.

Item Rule: The measurement position is only inserted, if this field is empty or matches the value was entered in QC item link in quality control item master data.

Only All Documents: The measurement position is inserted for the selected documents. For example, the value 5 inserts it for the first and the sixth document.

Always by Error: This setting is only used, if the ***Only All Documents*** setting has a value. On a faulty QC order, the counter is reset, and the measurement position is inserted.

Only All Samples: The measurement position is inserted for the selected samples. For example, the value 5 inserts it for the first and the sixth sample.

Script: A script can be stored to determine, whether to create a measurement position.

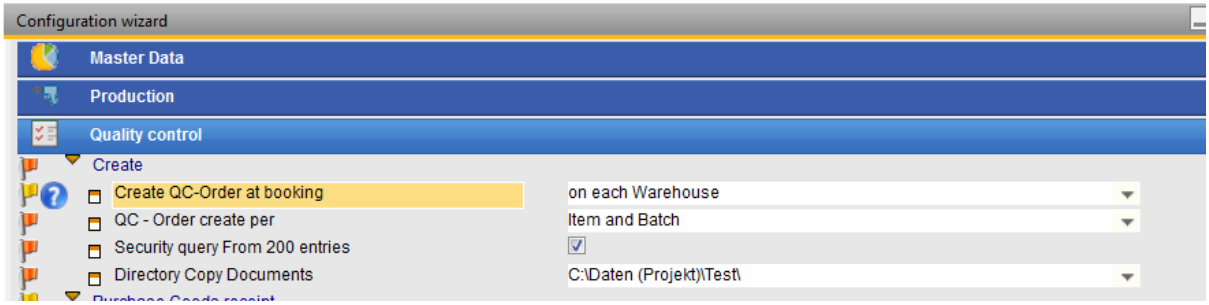
Attribute Selection: Only valid for the Attribute measurement type. A selection list can be stored to register attributes

5. CONFIGURATION WIZARD

Configuration Wizard settings determine the behavior of the QC plan.

5.1. Creating an order

Configuration Wizard > Quality control > Create



Create QC-Order at booking: This parameter determines whether the QC order is created when bookings are done on any warehouse or only on a special QC warehouse.

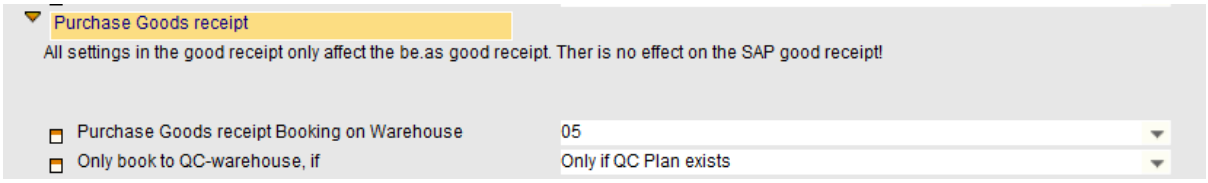
The QC warehouse can be defined in Beas extended warehouse options.

QC-Order create per: Creating a QC order can be based on batch, on order receipt, or on item number.

Directory Copy Documents: Documents can be linked, and the path can be defined. If a document linked to a QC order changes, a new file with a new version is saved in the defined path.

5.2. Purchase goods receipt

Configuration Wizard > Quality control > Purchase Goods receipt

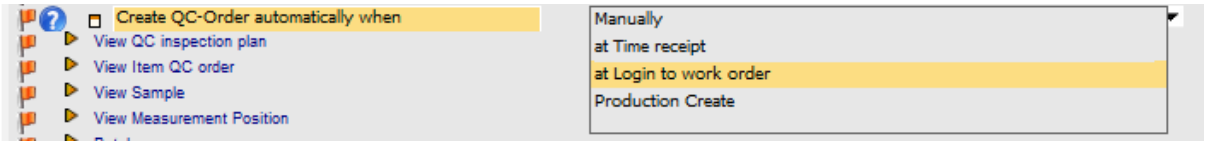


Purchase Goods receipt Booking on Warehouse: Defines the purchase warehouse goods are posted to, if *only QC-warehouse* is set at *create QC-order at booking*. Only warehouses of goods receipt type can be selected.

Only book to QC-warehouse, if: Determines whether all items or only items with a QC plan should be considered during the posting to this warehouse. This function only works with the Beas goods receipt function.

5.3. Production

Configuration Wizard > Quality control > Production

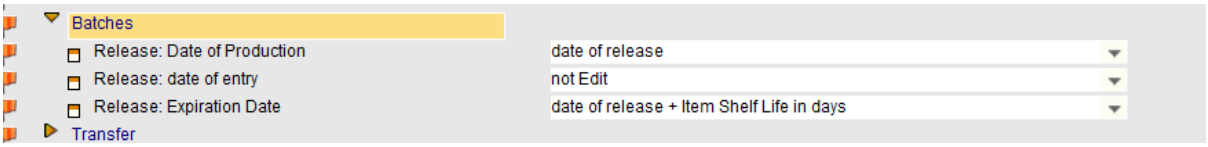


Create QC-Order automatically when: Determines the operation for which the QC order is automatically generated. This can be when the work order is created, when the time receipt on an operation is created or at the login of an operation.

5.4. Batches

Configuration Wizard > Quality control > Batches

Date parameters for batches can be set in the Configuration Wizard. The method of generating fields and parameters in the batch master data can be defined.



Release: Date of production: Manufacturing date.

Release: date of entry: Date of receipt.

Release: Expiration Date: Expiration date when batches are released.

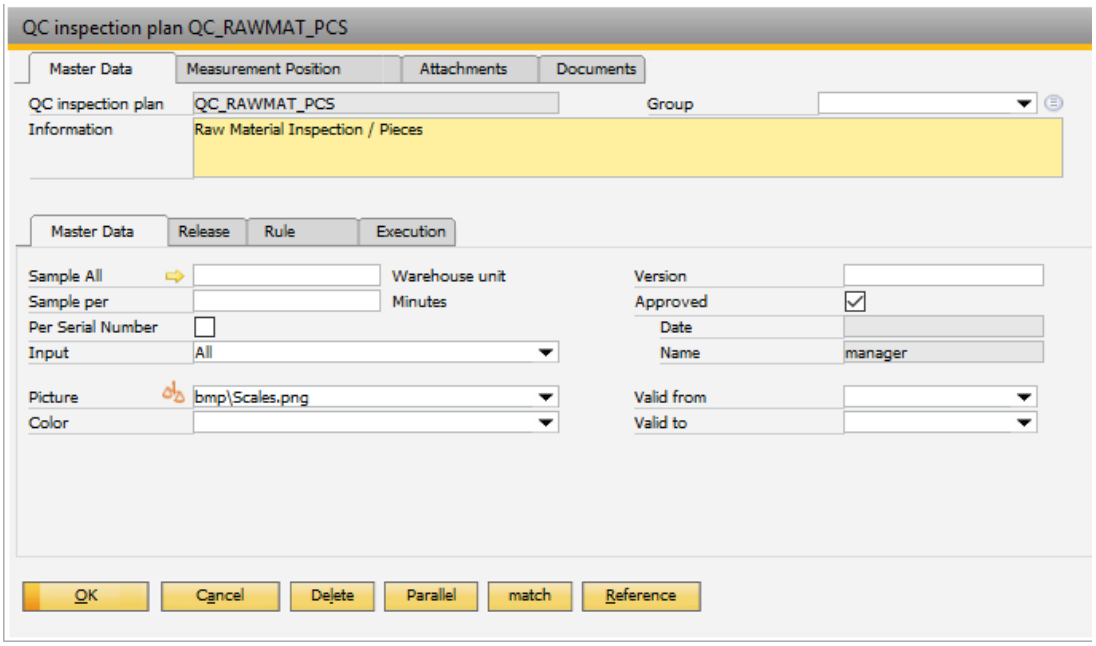
6. EXAMPLES

6.1. QC order created automatically when a goods receipt is created

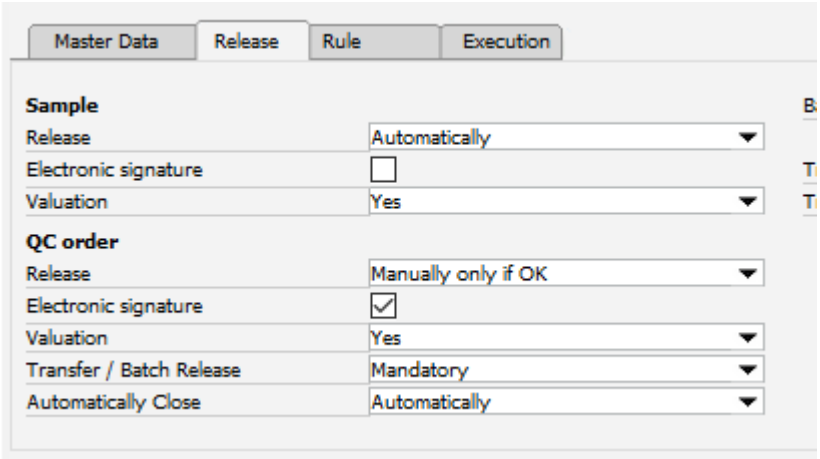
In this example, an inspection plan is set up for a raw material managed in batches. The QC orders are set to be created automatically at goods receipt.

1. Create an inspection plan as described in *Creating a QC inspection plan*.

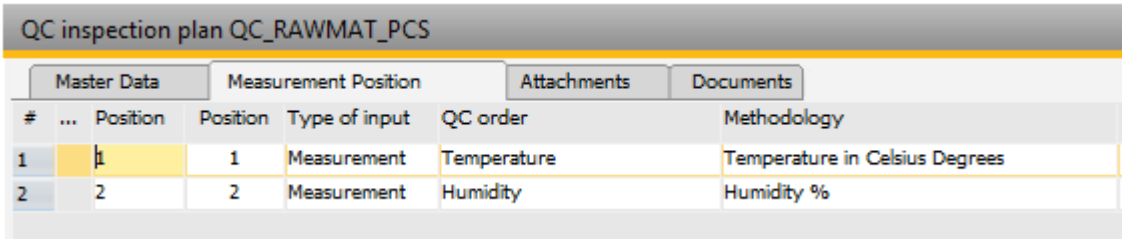
Production > Quality Control > QC inspection plan



The sample is set to automatic release. The QC order is released manually, and the four eyes principle is also applied on the QC order by using the electronic signature option.

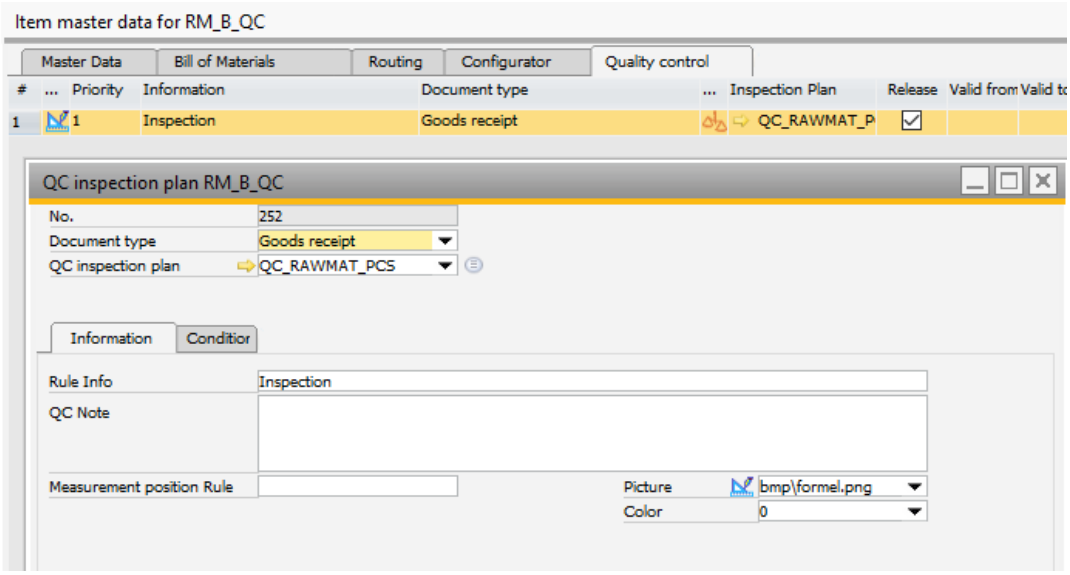


Two measurement positions are created.



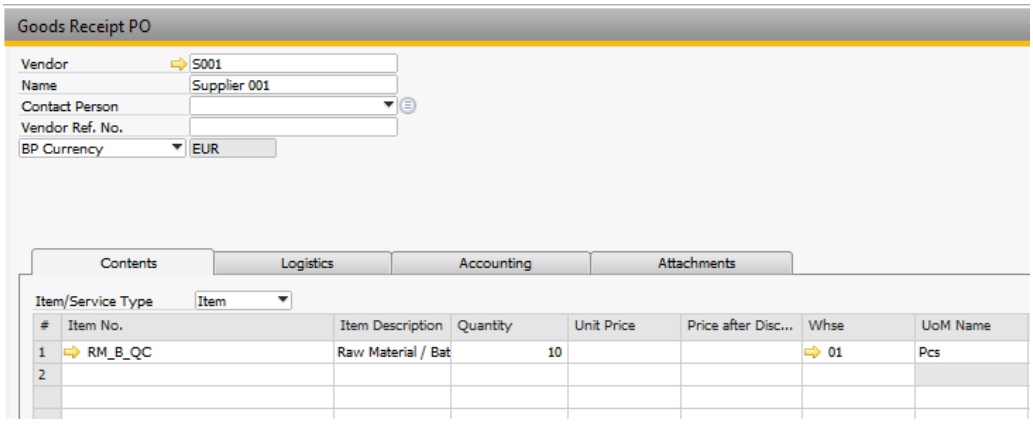
2. Link the inspection plan to the item master data of the purchase item in the Quality control tab.

Inventory > Item Master Data



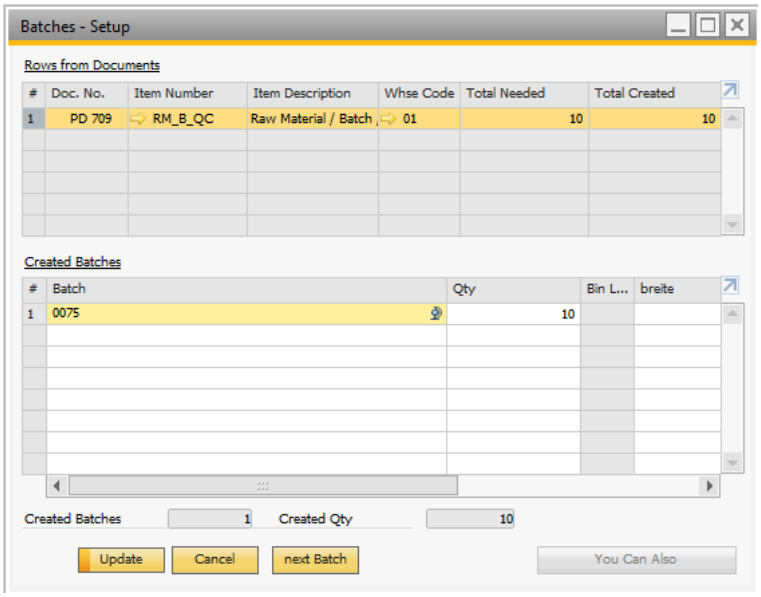
3. Create a Goods Receipt PO for the item.

Purchasing – A/P > Goods Receipt PO



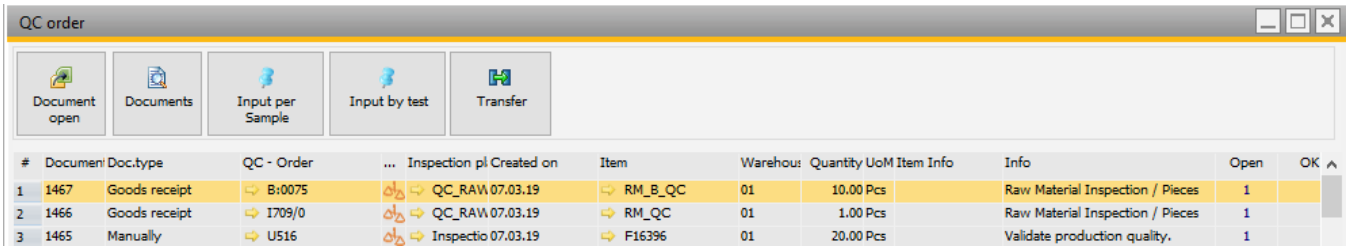
4. Allocate the batches for a batch item.

   This can be done using the **next Batch** button, which assigns the next available batch.



The QC is created when the goods receipt is added, and it appears in the QC order list.

Production > Quality control > QC orders



6.2. QC order created automatically when a time receipt is created

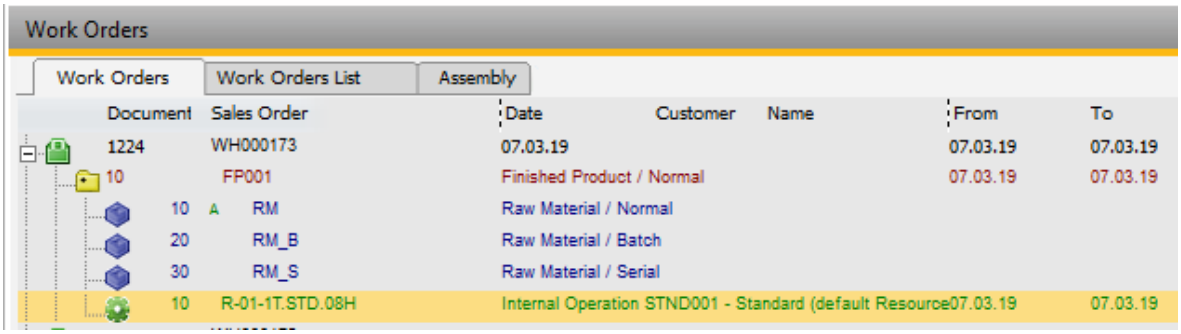
In this example, an inspection plan is set up for an operation. The QC orders are set to be created automatically at the time receipt.

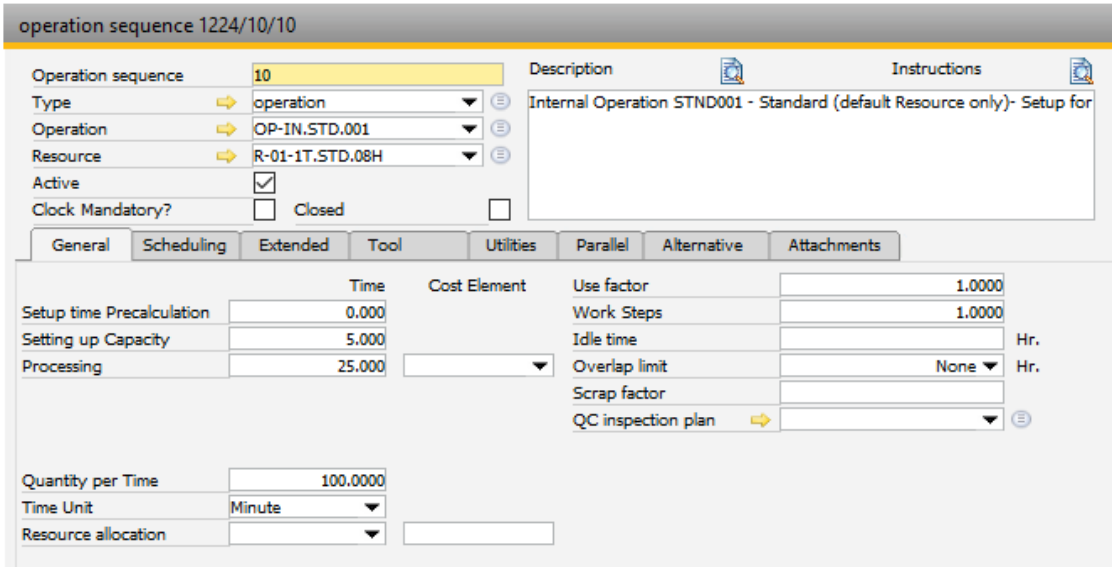
1. Create an inspection plan as described in *Creating a QC inspection plan*.

   Production > Quality Control > QC inspection plan

2. Edit the operation in a work order and link the QC inspection plan.

   Production > Work Orders

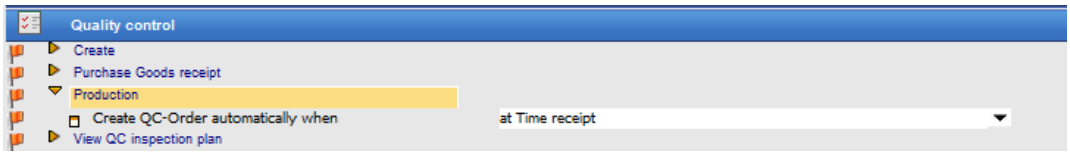




3. Make sure that the Configuration Wizard settings are correct for the QC order creation during production.

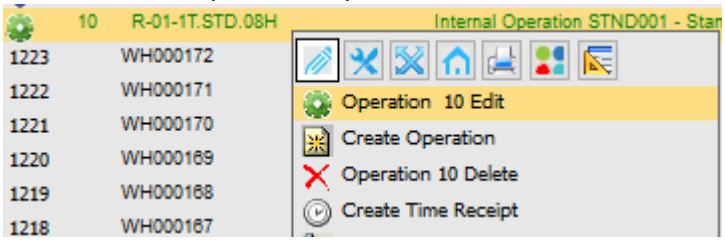
Configuration Wizard > Quality control > Production

In this example, it is set to *at Time receipt*.

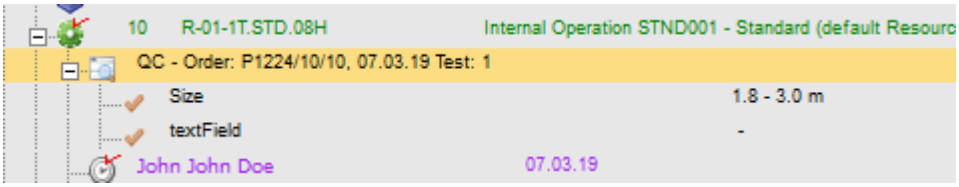


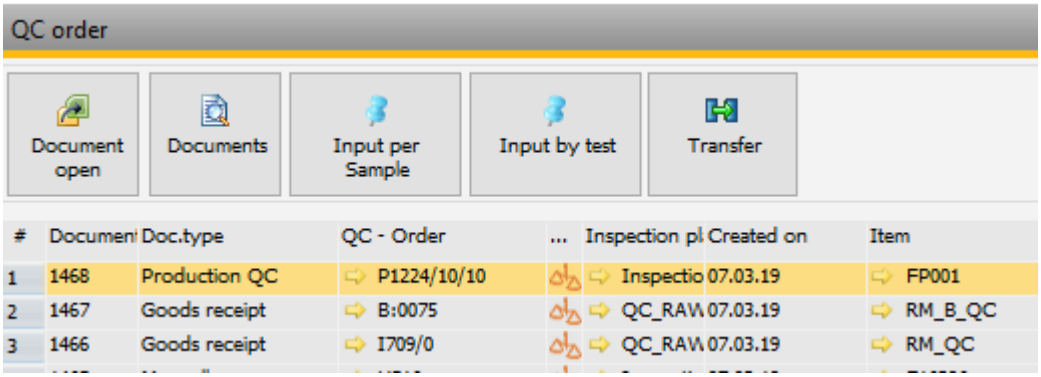
See *Production* for more details.

4. Create a time receipt for the operation either on the Terminal or manually, using the right-click menu.



The QC order is created, and it appears in the work order tree view and the QC order list.




QC order
Document open
Documents
Input per Sample
Input by test
Transfer
Documen Doc.type QC - Order ... Inspection pl Created on Item
1 1468 Production QC P1224/10/10 Inspectio 07.03.19 FP001
2 1467 Goods receipt B:0075 QC_RAW 07.03.19 RM_B_QC
3 1466 Goods receipt I709/0 QC_RAW 07.03.19 RM_QC