

# Quality Control Plans

Overview of the quality control process data

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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:

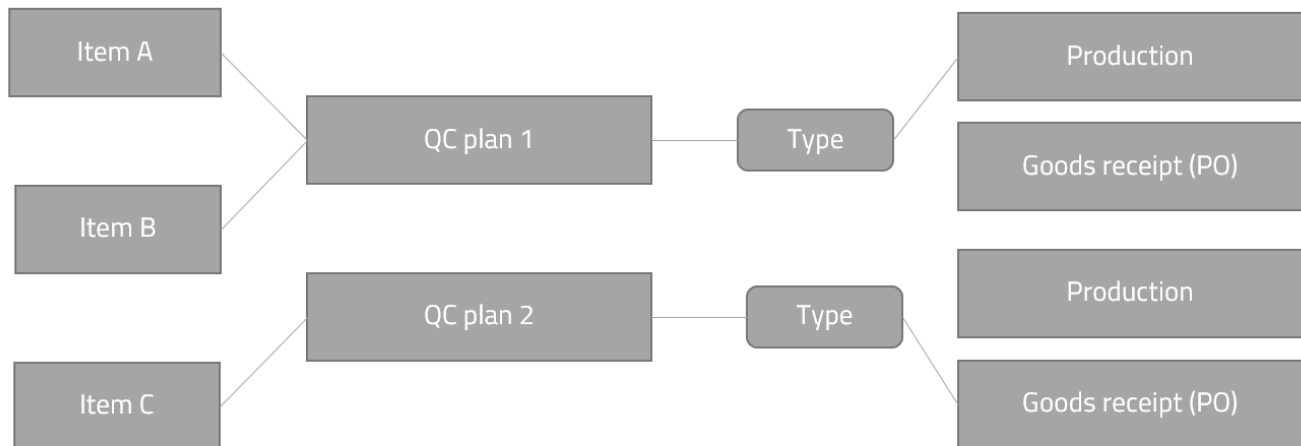
- General overview of the QC process
- Explanation on fields impacting the QC Process based on a QC plan
- Overview of a QC Plan

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.

The screenshot shows the 'Quality control' tab of the item master data for item FT01. The table below represents the data visible in the screenshot.

#	...	Priority	Information	Document type	...	Inspection Plan	Release	Valid from	Valid to	B
1		1	GR Production	Production		MVSQ3	<input checked="" type="checkbox"/>	12.06.201		

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

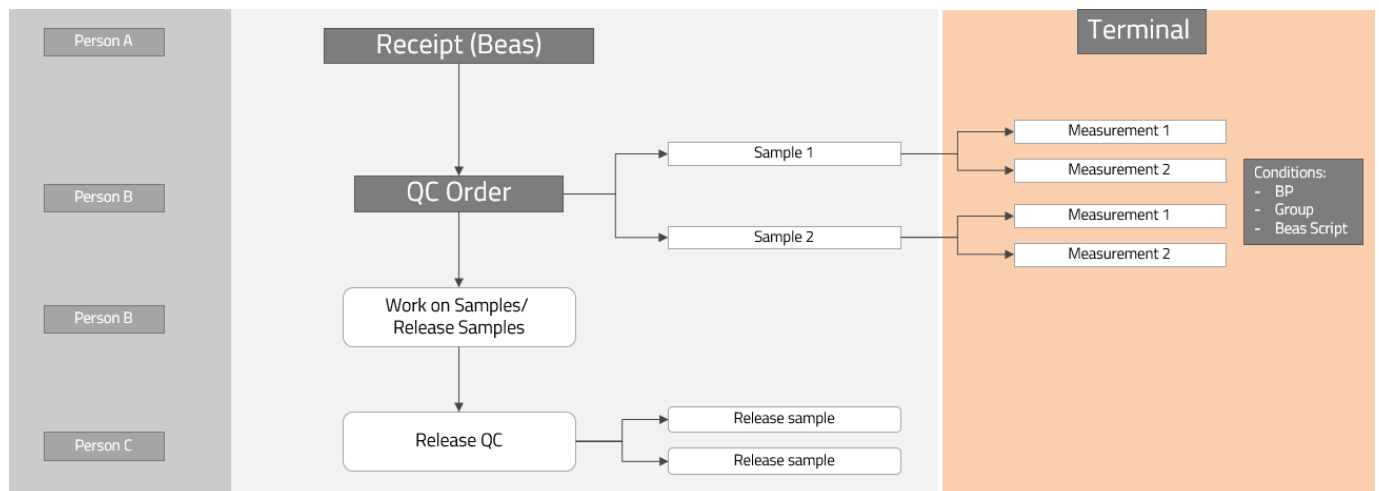
Quality control plans can be set up for the production or goods receipt processes.

### 2.1. Goods receipt with QC

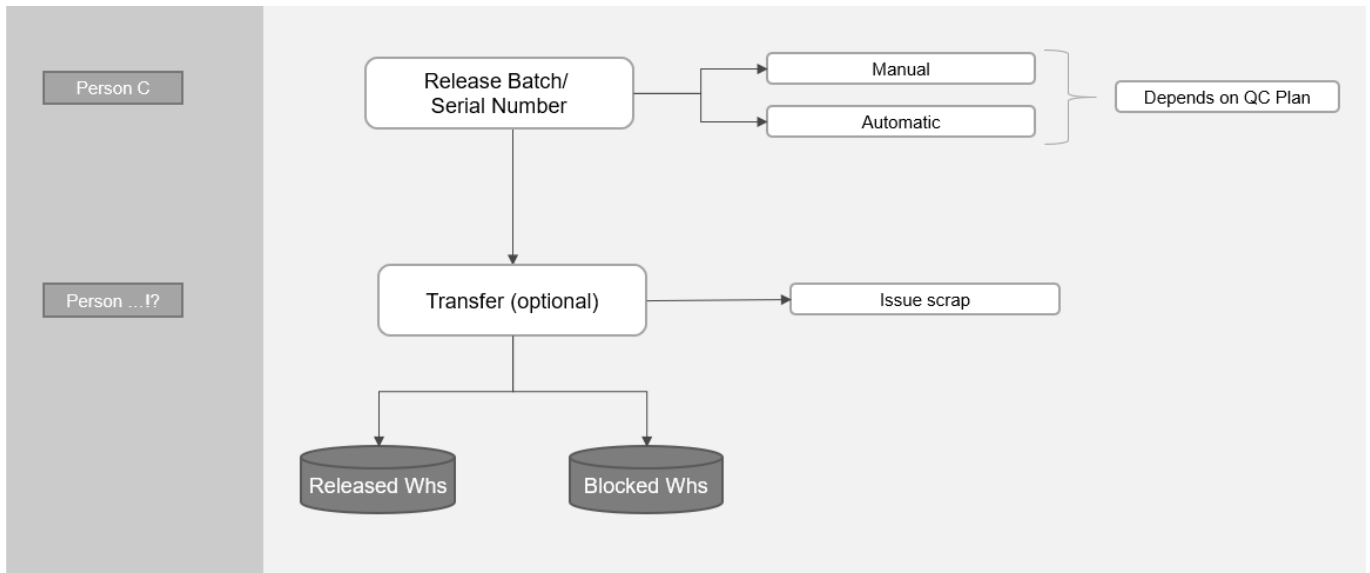
This process can be set up for purchase or production items.

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.

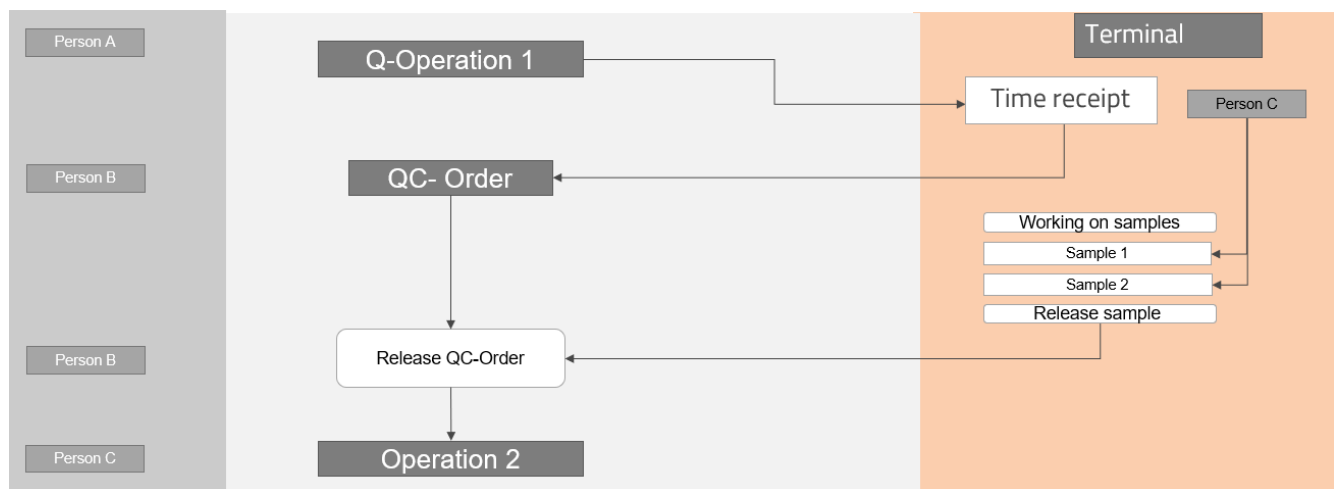


The various release steps can be performed by different personnel. If you want to work with additional warehouses, like a scrap or QC warehouse, a transfer can be completed from the QC order to each of these warehouses.



## 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.



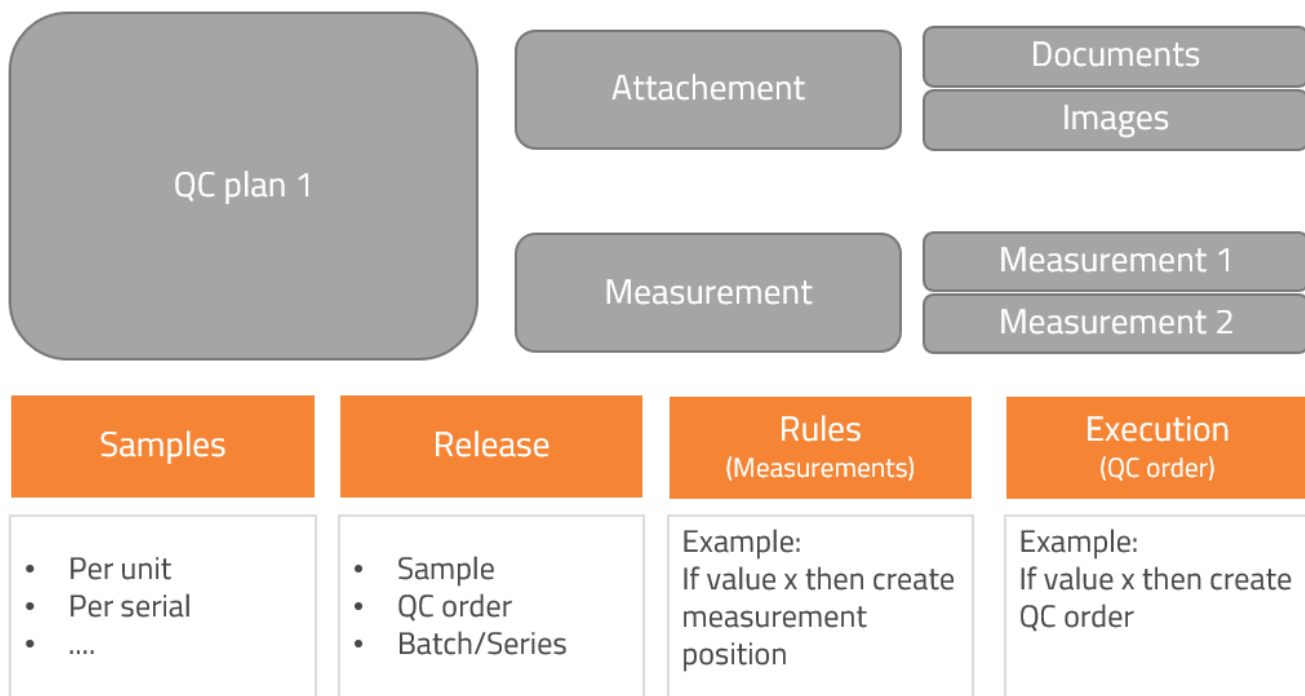
With an additional option in the Configuration Wizard, it is possible to avoid starting an operation which follows a QC operation with a QC order that is not released (FDC rules).

## 3. CREATING A QC INSPECTION PLAN

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

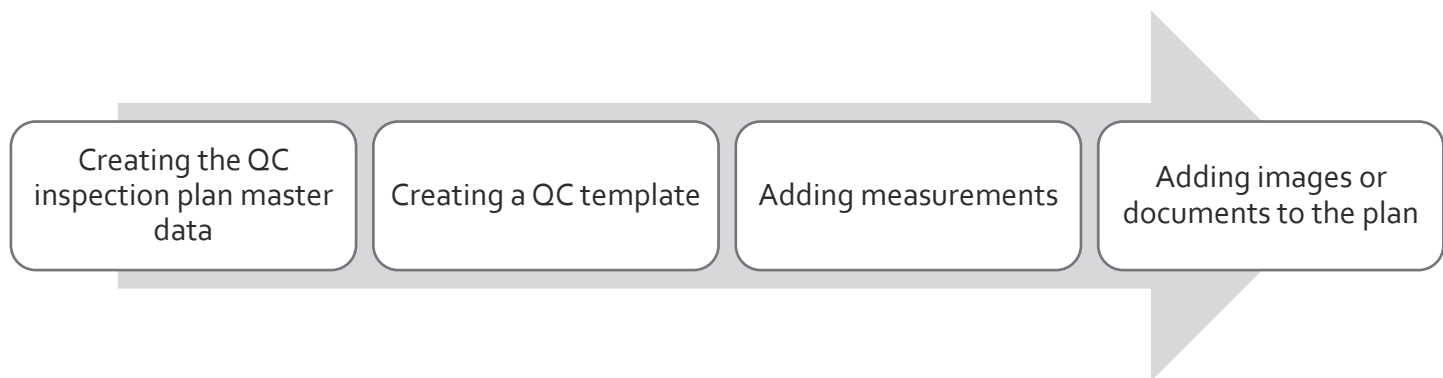
Production > Quality Control

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.

#	Position	Type of input	QC order	Methodology
1	1	Measurement	Newmeas	
2	2	Attribute	attribut	test attribut
3	3	Text	textField	this is a text field

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.

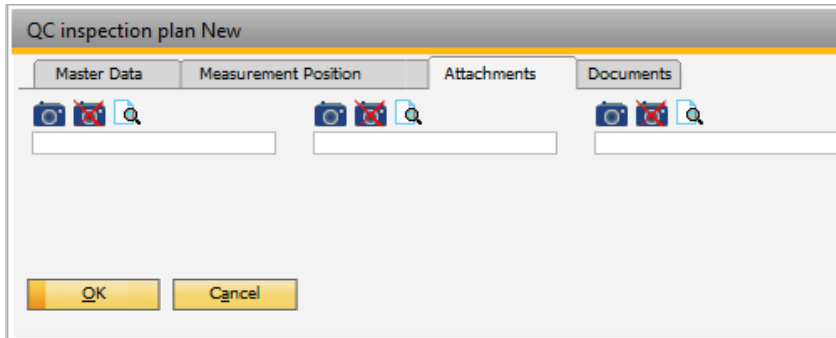


**Note:** For an automated release process, at least one *Relevant* measurement position is required.

### 3.4. Attachments and documents

Production > Quality control > QC inspection plan

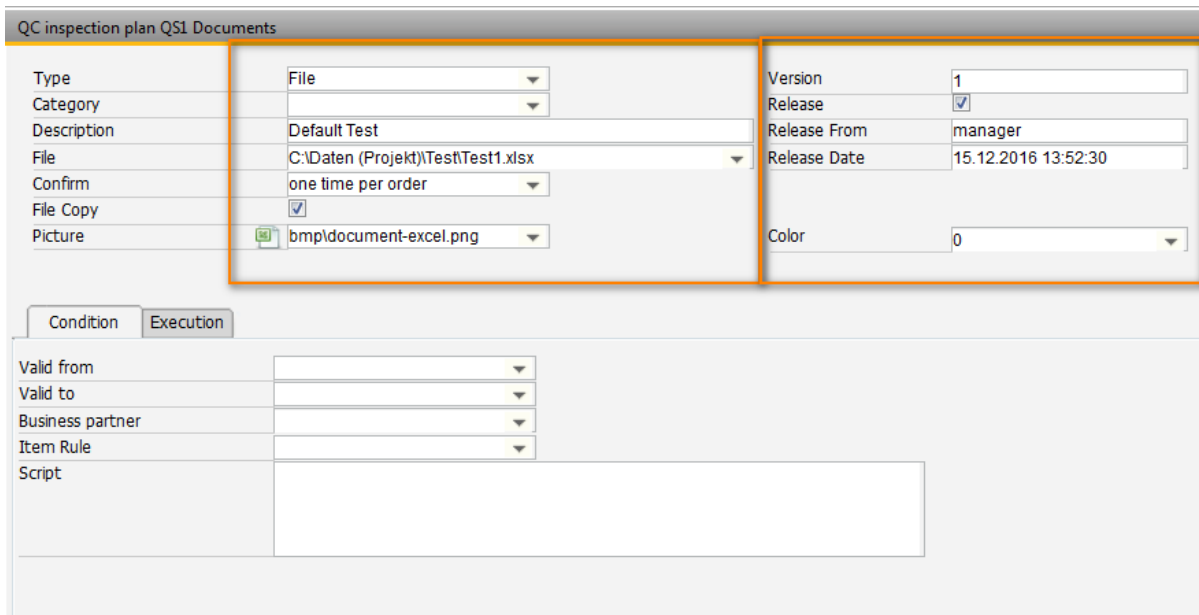
Up to 3 images can be attached to a QC plan. Click on the camera icon to select a picture, which is then displayed on the screen. The added images can be printed on QC documents.



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.

Documents P644/20/40

#	...	Type	Category	Description	Version	Date
1		File		Attachment		12.10.2017 09:27

Bestätigungen

#	Personnel	Name	Date	Work station	QC order
1	4	Tim Wehrle	12.10.2017 09:27	BEAS-TW	P644/20/40

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

QC inspection plan QS1

Master Data   Measurement Position   Attachments   Documents

#	...	Description	Group	Type	Confirmation	Copy create	Version	Release	Release User
1		Default Test		Anlage	one time per order	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>	1

Bestätigungen

#	Personnel	Name	Date	Work station	QC order	Version
1	4	Tim Wehrle	15.12.2016 14:04	BEAS-TW	B:WE0176	
2	4	Tim Wehrle	15.12.2016 14:11	BEAS-TW	B:WE0177	1

### 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.

The screenshot shows the 'Release' tab in a configuration window. It contains two sections: 'Sample' and 'QC order'. Each section has fields for 'Release', 'Electronic signature', and 'Valuation'. The 'Release' field for 'Sample' is set to 'Automatically'. The 'Electronic signature' field for 'Sample' is also set to 'Automatically'. The 'Valuation' field for 'Sample' is set to 'Manually only if ok'. The 'Release' field for 'QC order' is set to 'Manually always'. The 'Electronic signature' field for 'QC order' is set to 'Manually always'. There are also checkboxes for 'Electronic signature' in both sections.

Section	Field	Value
Sample	Release	Automatically
	Electronic signature	Automatically
	Valuation	Manually only if ok
QC order	Release	Manually always
	Electronic signature	Manually always

### 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.

The screenshot shows the 'Release' tab in a configuration window for 'QC order'. It contains fields for 'Release', 'Electronic signature', 'Valuation', 'Transfer / Batch Release', and 'Automatically Close'. The 'Release' field is set to 'Manually always'. The 'Electronic signature' field is set to 'Automatically'. The 'Valuation' field is set to 'Manually only if ok'. The 'Transfer / Batch Release' field is set to 'Manually always'. The 'Automatically Close' field is set to 'Manually always'. There is also a checkbox for 'Electronic signature'.

Field	Value
Release	Manually always
Electronic signature	Automatically
Valuation	Manually only if ok
Transfer / Batch Release	Manually always
Automatically Close	Manually always

### 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*.

The screenshot shows a dropdown menu for the 'Transfer / Batch Release' field. The options are 'Manually', 'Mandatory', and 'Automatically'. 'Manually' is selected.

Field	Value
Transfer / Batch Release	Manually

### 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.

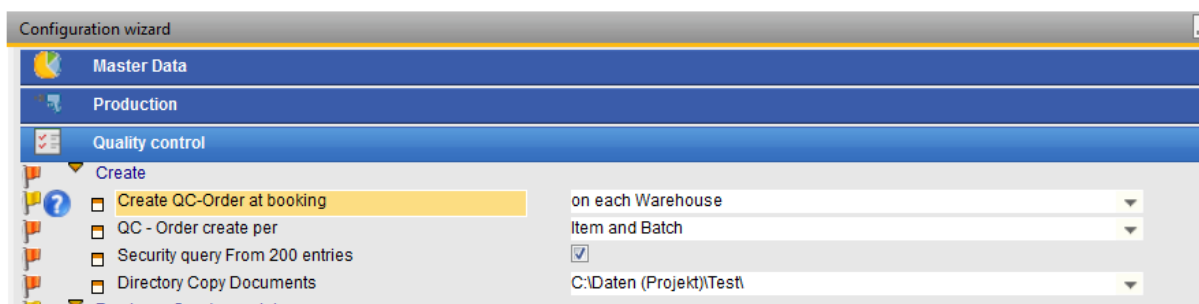
**Attribute Selection:** Only valid for the Attribute measurement type. A selection list can be stored to register attributes

## 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**  
All settings in the good receipt only affect the be.as good receipt. Ther is no effect on the SAP good receipt!

☐ Purchase Goods receipt Booking on Warehouse 05

☐ Only book to QC-warehouse, if Only if QC Plan exists

**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**

- Manually
- at Time receipt
- at Login to work order
- Production Create

**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.

**Batches**

☐ Release: Date of Production date of release

☐ Release: date of entry not Edit

☐ Release: Expiration Date date of release + Item Shelf Life in days

**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 screenshot shows the SAP configuration screen for a QC inspection plan named 'QC\_RAWMAT\_PCS'. The 'Master Data' tab is active, showing the plan name and its information: 'Raw Material Inspection / Pieces'. Below this, there are tabs for 'Master Data', 'Release', 'Rule', and 'Execution'. The 'Release' tab is selected, showing settings for sample release. Key settings include: 'Sample All' set to 'All', 'Warehouse unit' set to 'Minutes', 'Version' set to 'manager', 'Approved' checked, 'Date' set to 'manager', 'Valid from' and 'Valid to' set to empty. There are also fields for 'Picture' (bmp\Scales.png) and 'Color'. At the bottom, there are buttons for 'OK', 'Cancel', 'Delete', 'Parallel', 'match', and 'Reference'.

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.

The screenshot shows the 'Release' tab of the SAP QC inspection plan configuration screen. It displays settings for 'Sample' and 'QC order'. For 'Sample', 'Release' is set to 'Automatically', 'Electronic signature' is unchecked, and 'Valuation' is set to 'Yes'. For 'QC order', 'Release' is set to 'Manually only if OK', 'Electronic signature' is checked, 'Valuation' is set to 'Yes', 'Transfer / Batch Release' is set to 'Mandatory', and 'Automatically Close' is set to 'Automatically'. On the right side, there are buttons for 'B', 'T', and 'T'.

Two measurement positions are created.

QC inspection plan QC_RAWMAT_PCS						
Master Data		Measurement Position		Attachments	Documents	
#	...	Position	Position	Type of input	QC order	Methodology
1		1	1	Measurement	Temperature	Temperature in Celsius Degrees
2		2	2	Measurement	Humidity	Humidity %

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

### Inventory > Item Master Data

Item master data for RM\_B\_QC

#	...	Priority	Information	Document type	...	Inspection Plan	Release	Valid from	Valid to
1		1	Inspection	Goods receipt		QC_RAWMAT_P	<input checked="" type="checkbox"/>		

QC inspection plan RM\_B\_QC

No. 252

Document type Goods receipt

QC inspection plan QC\_RAWMAT\_PCS

Information Condition

Rule Info Inspection

QC Note

Measurement position Rule

Picture bmp\formel.png

Color 0

3. Create a Goods Receipt PO for the item.

### Purchasing – A/P > Goods Receipt PO

Goods Receipt PO

Vendor S001

Name Supplier 001

Contact Person

Vendor Ref. No.

BP Currency EUR

Contents Logistics Accounting Attachments

#	Item No.	Item Description	Quantity	Unit Price	Price after Disc...	Whse	UoM Name
1	RM_B_QC	Raw Material / Bat	10			01	Pcs
2							

4. Allocate the batches for a batch item.

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

Batches - Setup

#	Doc. No.	Item Number	Item Description	Whse Code	Total Needed	Total Created
1	PD 709	RM_B_QC	Raw Material / Batch	01	10	10

#	Batch	Qty	Bin L...	breite
1	0075	10		

Created Batches: 1 Created Qty: 10

Update Cancel next Batch You Can Also

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

Production > Quality control > QC orders

QC order

Document open Documents Input per Sample Input by test Transfer

#	Document	Doc.type	QC - Order	Inspection pl	Created on	Item	Warehouse	Quantity	UoM	Item Info	Info	Open	OK
1	1467	Goods receipt	B:0075	QC_RAVI	07.03.19	RM_B_QC	01	10.00	Pcs	Raw Material Inspection / Pieces	1		
2	1466	Goods receipt	1709/0	QC_RAVI	07.03.19	RM_QC	01	1.00	Pcs	Raw Material Inspection / Pieces	1		
3	1465	Manually	U516	Inspectio	07.03.19	F16396	01	20.00	Pcs	Validate production quality.	1		

## 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

Work Orders

Work Orders List Assembly

Document	Sales Order	Date	Customer	Name	From	To
1224	WH000173	07.03.19			07.03.19	07.03.19
10	FP001			Finished Product / Normal	07.03.19	07.03.19
10	A RM			Raw Material / Normal		
20	RM_B			Raw Material / Batch		
30	RM_S			Raw Material / Serial		
10	R-01-1T.STD.08H			Internal Operation STND001 - Standard (default Resource	07.03.19	07.03.19

operation sequence 1224/10/10

Operation sequence	10	Description	Internal Operation STND001 - Standard (default Resource only)- Setup for
Type	operation	Instructions	
Operation	OP-IN.STD.001		
Resource	R-01-1T.STD.08H		
Active	<input checked="" type="checkbox"/>		
Clock Mandatory?	<input type="checkbox"/> Closed		

General | **Scheduling** | Extended | Tool | Utilities | Parallel | Alternative | Attachments

Setup time Precalculation	0.000	Time	Cost Element	Use factor	1.0000
Setting up Capacity	5.000			Work Steps	1.0000
Processing	25.000			Idle time	
				Overlap limit	None
				Scrap factor	
				QC inspection plan	

Quantity per Time: 100.0000  
Time Unit: Minute  
Resource allocation:

- 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*.

Quality control

- Create
- Purchase Goods receipt
- Production**
  - ☒ Create QC-Order automatically when *at Time receipt*
  - View QC inspection plan

See *Production* for more details.

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

10 R-01-1T.STD.08H Internal Operation STND001 - Stan

1223	WH000172	
1222	WH000171	
1221	WH000170	
1220	WH000169	
1219	WH000168	
1218	WH000167	

Operation 10 Edit  
Create Operation  
Operation 10 Delete  
Create Time Receipt

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

10 R-01-1T.STD.08H Internal Operation STND001 - Standard (default Resource

QC - Order: P1224/10/10, 07.03.19 Test: 1

Size 1.8 - 3.0 m

textField -

John John Doe 07.03.19

## QC order

```

graph LR
    A[Document open] --> B[Documents]
    B --> C[Input per Sample]
    C --> D[Input by test]
    D --> E[Transfer]
  
```

#	Document	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