

Inspection Planning with the Engineering Workbench



HELP.QMPTWB

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Icons

Icon	Meaning
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	Note
	Recommendation
	Syntax
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Inspection Planning with the Engineering Workbench

Purpose

You use the inspection planning functions to define inspection criteria (for example, material to be inspected, how the inspection is to take place, characteristics to be inspected, required test equipment, work center and inspection specifications). The R/3 System contains the following inspection planning options:

You can use task lists ([inspection plans \[Page 7\]](#), [routings \[Ext.\]](#), [rate routings \[Ext.\]](#), [master recipes \[Ext.\]](#), and [maintenance task lists \[Ext.\]](#)) to define inspection characteristics, their assignment to inspection operations and the test equipment to be used. This enables you to inspect materials at a quality inspection.

Implementation Considerations

Inspection operations are increasingly integrated in the production operations. The R/3 System offers you inspection plans for different uses, for example, model inspection, goods receipt inspection, goods issue inspection, material inspection and audit. You can save time, if you use the Engineering Workbench to create these inspection plans. The system takes the task list usage that you defined into account when selecting task lists.

Integration

In the inspection plan, you determine the inspection operations, the inspection characteristics to be inspected in each operation, the test equipment to be used and the criteria for sample determination. The inspection plan that is included in the QM component is related to the routing and the rate routing in the *Production* (PP) component and to the master recipe in the *Process Industry* (PP-PI) component. These task list types only differ slightly, with respect to the inspection planning functions.

For inspections in production, you do not need to additionally maintain inspection plans. The inspection characteristics are defined in the routings, rate routings or master recipes. You can assign the characteristics to the production operations themselves, or to the operations intended for inspection.

In inspection planning, you can reference the following master data:

- **QM-specific data**
 - [Material specification \[Ext.\]](#)
 - [Inspection plans \[Page 7\]](#)
 - [Master inspection characteristics \[Ext.\]](#)
 - [Inspection methods \[Ext.\]](#)
 - [Code groups \[Ext.\]](#) and [selected sets \[Ext.\]](#)
 - [Sampling procedure \[Ext.\]](#)
 - [Sampling schemes \[Ext.\]](#)
 - [Dynamic modification rules \[Ext.\]](#)
 - [Quality documents \[Ext.\]](#)

Inspection Planning with the Engineering Workbench

- [Quality info records \[Ext.\]](#)
- **Other master data**
 - [Material master records \[Ext.\]](#)
 - Data from the [classification \[Ext.\]](#)
 - [Vendor master records \[Ext.\]](#)
 - [Customer master records \[Ext.\]](#)
 - [Customer info records \[Ext.\]](#)
 - [Test equipment master records \[Ext.\]](#)
 - [Work centers \[Ext.\]](#)
 - [Routings \[Ext.\]](#)
 - [Rate routings \[Ext.\]](#)
 - [Reference operation sets \[Ext.\]](#)
 - [Master recipes \[Ext.\]](#)
 - [Maintenance task lists \[Ext.\]](#)

Inspection plans

Purpose

You can create inspection plans for different uses (for example, model inspection, carrying out an audit, preliminary series inspection, goods receipt inspection, goods issue inspection, inspection of stock transfers, inspections in repetitive manufacturing).

Integration

The R/3 System uses task lists as a planning and processing tool. In the R/3 System, you can inspect with or without a task list. If you use a task list, you can include inspection specifications in the production processes. Different task list types are used for planning purposes in the R/3 system, depending on the application component:

- In production (application component *PP*)
 - [Routings \[Ext.\]](#)
 - [Rate routings \[Ext.\]](#)
 - [Reference operation sets \[Ext.\]](#)
- In the process industry (application component *PP-PI*)
 - [Master recipes \[Ext.\]](#)
- In plant maintenance (application component *PM*)
 - [Maintenance task lists \[Ext.\]](#)
- In quality management (application component *QM*)
 - Inspection plans
 - Reference operation sets

The inspection plan is related to the rate routing and the master recipe. These task list types only differ slightly, with respect to the inspection planning functions.

For inspections in production, you do not need to additionally process inspection plans. The inspection characteristics are defined in routings (inspection during production), rate routings, master recipes (inspection during production in the process industry) or maintenance task lists (calibration inspection).

When you create an inspection plan, you can copy or link to a reference operation set (describes frequently-used operations but is not assigned to a material).

Features

- You use an inspection plan to define which characteristics are to be inspected in each inspection operation and which test equipment is to be used in the inspection.
- You use an inspection plan, for example, to carry out a model, goods issue, goods receipt or recurring inspection.
- You can collate inspection plans in task list groups.

Inspection plans

- The inspection plan is divided into the elements inspection plan header, inspection operation, inspection characteristic and test equipment as a production resource/tool.



The task list types used in production contain other elements, such as, alternative operation sequences and material components.

- In the inspection plan header, you can define general data, (for example, planner group, task list usage, task list status, information for dynamic modification, inspection points, physical-sample drawing).
- You can assign several materials to an inspection plan. You can create several inspection plans with different inspection operations or inspection characteristics for a material or a combination of material, vendor and manufacturer, or material and customer.
- You can assign an inspection plan to several vendors or customers.
- Plans are subject to engineering change management. The system manages separate change statuses for each structural element in the plan. Therefore, you can check at any time how a plan looked at a particular key date.

Inspection Planning with Inspection Plans

Use

Inspection plans help you to describe how a quality inspection of one or several materials is to take place. In the inspection plan, you define the sequence of inspection operations and the range of specifications available for inspecting inspection characteristics.

Integration

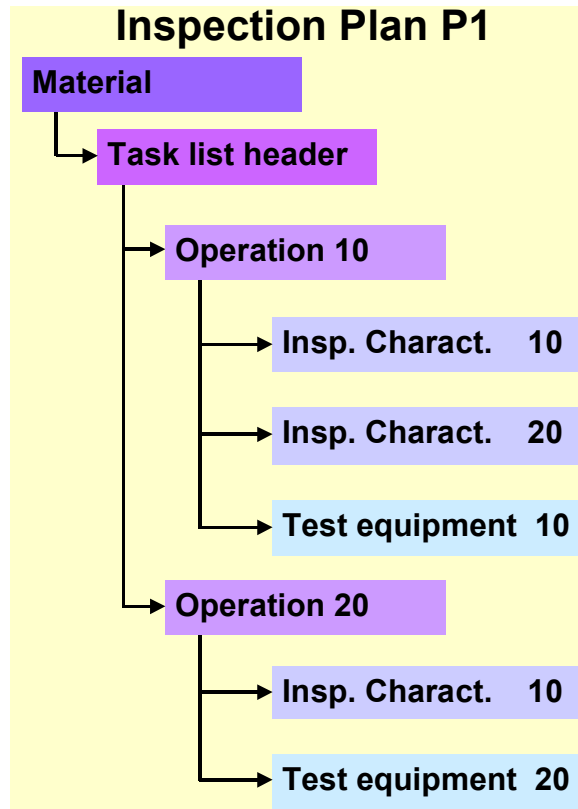
You can integrate the following master data in your inspection plans:

- **QM-specific data**
 - [Master inspection characteristics \[Ext.\]](#) to standardize the definition of the characteristics to be inspected.
 - [Inspection methods \[Ext.\]](#), to define the procedures used in the inspections.
 - [Code groups \[Ext.\]](#) and [selected sets \[Ext.\]](#), to define codes for results recording.
 - [Sampling procedures \[Ext.\]](#) for sample determination.
 - [Dynamic modification rules \[Ext.\]](#), to change inspection scopes based on the expected quality level.
- **Other master data**
 - [Reference operation sets \[Ext.\]](#), to structure operations and inspection characteristics.
 - [Work center \[Ext.\]](#), to define where the inspection is to take place. The work center is also used to settle [appraisal costs \[Ext.\]](#).
 - [Production resources/tools \[Ext.\]](#), to define the test equipment to be used. Inspection planning must ensure that the test equipment required for an inspection is available or can be obtained.
 - [Change master record \[Ext.\]](#), with which you can manage various change statuses.
 - [Classes in the class system \[Ext.\]](#), to classify inspection plans.
 - Scheduling, to check the expected run time and modify it if necessary.
 - [Material master \[Ext.\]](#) for the materials that are inspected with the inspection plan.
 - [Vendor master records \[Ext.\]](#), to assign an inspection plan to a material in conjunction with a vendor.
 - [Customer master records \[Ext.\]](#), to assign an inspection plan to a material in conjunction with a customer.
 - [Sampling schemes \[Ext.\]](#) for sample determination.
 - Info records for combinations of material and vendor, or of material, customer and sales organization or purchasing data.

Inspection Planning with Inspection Plans

Features

The inspection plan has a similar structure to that of the routing. Inspection characteristics and test equipment (production resources/ tools) are assigned to one or more operations, which are in turn assigned to the inspection plan header.



Inspection Plan Header

The structure of the inspection plan header is similar to that of the routing. The information defined in the plan header serves as the specification for the entire plan. The following information is defined in the plan header:

- General plan data (for example, task list group, group counter, plant, task list usage, plan status, planner group responsible, validity of the plan for a certain lot-size range, old plan number)
- Information about dynamic modification and inspection points (for example, definition of inspection points, sample-drawing procedure, dynamic modification level, dynamic modification rule, dynamic modification criteria).
- Information about external numbering in results recording.
- Information about engineering change management (for example, change rule, change type).
- Administrative data (for example, change number, validity period, creator, created on, changed by, changed on and date last archived).

You can enter a long text for the task list header to describe the inspection plan in detail.

Material-Task List Assignments

You assign one or more materials to the inspection plan. The structure of the [material-task list assignments \[Page 27\]](#) is also similar to that of the operations in a routing. You determine:

- Which material or materials of which plant are to be inspected with the actual task list

Inspection Operation

You assign one or more inspection operations to the inspection plan header. At the operation level, you define:

- How the inspection is to take place
- The work center for the inspection
- The sequence in which the inspections are to take place
- Default values (such as base quantity, unit of measure, conversion of units of measure (header/operation))
- Data for controlling results recording
- Information about the inspection point (reference, inspection point completion)
- Values for calculating appraisal costs
- User-specific fields

Inspection Characteristic

You can assign several inspection characteristics to each inspection operation. At inspection characteristic level, you define:

- What is to be inspected (characteristic number, short text, long text and master inspection characteristic, if required)
- Characteristic type (quantitative or qualitative inspection characteristic)
- Characteristic category (required characteristic, optional characteristic, conditional characteristic)
- Controls for results recording
- Control indicators for the inspection characteristic
- Quantitative data for the quantitative characteristic
- Characteristic attributes (catalog type 1) for the qualitative inspection characteristic
- Other catalogs
- Test equipment to be used (one for each inspection characteristic)
- Inspection method to be used (one for each inspection characteristic)
- Sampling procedure to be used (one for each inspection characteristic)
- Dynamic modification rule to be used (one for each inspection characteristic)

For inspection characteristics in an operation, you can define the following dependencies:

- Whether a characteristic (conditional characteristic) is to be inspected, based on whether the previous characteristic has been accepted or rejected.

Inspection Planning with Inspection Plans

- Whether the sample size for a characteristic (dependent characteristic) is to be dynamically modified using a leading characteristic.
- Whether the system is to calculate the characteristic value for a characteristic (calculated characteristic) using data from other characteristics that have been previously valuated.

Dependent characteristic specifications

You can [assign dependent characteristic specifications \[Page 52\]](#) to each inspection characteristic. On the dependent characteristic specification level you define for qualitative or quantitative inspection characteristics:

- Material/vendor-specific dependent characteristic specifications **and/or**
- Material/customer-specific dependent characteristic specifications

The relevant material/vendor or material/customer combination has to be assigned to the inspection plan.

Test equipment

You can assign several items of test equipment to each inspection operation, but only one to each inspection characteristic. On the test equipment level you define:

- The test equipment (as production resources/tools) that is required for the inspection described in the operation
- The test equipment (as production resources/tools) that is required for the inspection of the inspection characteristic

Processing of Inspection Plans/Reference Operation Sets

Purpose

You use inspection plans to process a quality inspection in *Quality Management* (QM). You use reference operation sets as copy models or references.

Prerequisites

- If you want to copy an inspection plan/reference operation set, there must be at least one inspection plan or reference operation set already in the system.
- If you want to use master records in the inspection plan (for example, material, master inspection characteristics, catalogs, inspection methods or work centers), these must exist and be released in the system.
- For inspection plans or reference operation sets that require history, the corresponding [change master record \[Ext.\]](#) must have been created.
- A released change order must have been created for inspection plans or reference operation sets requiring approval.
- The revision level of the material to be inspected must exist for inspection plans that are to be assigned to a revision level.

Process Flow

1. You call up the transaction for processing task lists and select a [working area \[Ext.\]](#).



If you work with user-specific roles, the work area screen is not displayed. Instead, a selection screen appears.

You can use the same transaction for creating, changing or displaying a new [object \[Ext.\]](#) (for example, task list header, inspection characteristic, test equipment).

You enter the selection period and the selection criteria for the objects to be displayed or processed. There are two screens available with different selection criteria for this selection.

If you want to change existing objects, you must enter a change number in the screen section *Process using*.

If you change existing objects, these objects are loaded from the database into your worklist and are locked against the access by other users (indicated by the *lock* symbol).

2. You switch to the required level of the object (for example, task list header level, operation level inspection characteristic level).
If you want to create a new object, enter a key for the required object in the [context block. \[Ext.\]](#)
3. You process the [header data \[Ext.\]](#) in the inspection plan or reference operation set.

Processing of Inspection Plans/Reference Operation Sets

4. You process the [inspection operations \[Ext.\]](#) in the inspection plan or reference operation set.
5. You assign inspection characteristics to the inspection operations.
6. If necessary, you perform the following steps (in any order):
 - You assign data at header and operation level.
 - You assign one or more materials (only for the inspection plan).
 - You process [inspection characteristics \[Ext.\]](#).
 - You define material/customer/vendor-specific default values (dependent characteristic specifications) for an inspection characteristic.
 - You assign test equipment at operation, characteristic level, or both (as production resources/ tools). You must however note that you can assign several items of test equipment to an operation, but can only assign one item of test equipment to an inspection characteristic.
 - You assign QM [basic data \[Ext.\]](#) at operation, characteristic level, (or both).
 - You determine the work center, at which the inspection takes place.
7. You release the inspection plan or reference operation set.
8. You save the inspection plan or reference operation set.



If you want to delete an inspection plan or reference operation set, in the task list overview, select the inspection plan or reference operation set to be deleted and choose *Delete*.

Creating and Copying an Inspection Plan

Use

You can create a new inspection plan, copy an existing inspection plan, or create a reference to or copy a reference operation set.



If you copy a reference operation set into an inspection plan, there is no longer a connection between inspection plan and reference operation set. You cannot therefore create a where-used list for the reference operation set or replace it in the inspection plan. In addition, changes made to the reference operation set are not automatically included in the inspection plan. You can however, overwrite the data in the copied reference operation set.

Prerequisites

Before creating an inspection plan, you must define:

- How (for example, at goods receipt and stock transfers) and when (validity) this inspection plan is to be used.
- Which materials are to be inspected with the inspection plan. These materials must exist in the system when you create the inspection plan.
- The work centers where inspections are to take place. These work centers must exist in the system when you create the inspection plan.
- The test equipment that is required for the inspection. This test equipment must exist in the system and have been released when you create the inspection plan.
- Whether you want to create an inspection plan using a copy model. In this case, there must be at least one inspection plan or reference operation set in the system.
- Whether you want to use master inspection characteristics. These master inspection characteristics must exist in the system and have been released when you create the inspection plan.
- Whether you want to use inspection methods. These inspection methods must exist in the system and have been released when you create the inspection plan.
- Whether you want to use code groups or selected sets. These code groups or selected sets must exist in the system and have been released when you create the inspection plan.
- Whether you want to use sampling procedures, sampling schemes or dynamic modification rules. This basic data must exist in the system when you create the inspection plan.

Procedure

1. Choose *Logistics* → *Quality management* → *Quality planning* → *Inspection planning* → *Inspection plan* → *Workbench*.
2. Choose the desired [Work area \[Ext.\]](#) and choose *Continue*.

Creating and Copying an Inspection Plan



If you work with user-specific roles, the work area screen is not displayed. Instead, a selection screen appears.

3. Enter the required selection criteria for the copy model/the new task list to be created.

The following selection criteria are available:

- Material
- Plant for the material
- Task list type *inspection plan* or *reference operation set*
- Task list group
- Group counter
- Plant for the task list
- Use
- Status
- Planner group

4. If you:

Choose <i>Load task lists</i>	The screen <i>Headers Overview</i> or <i>Operations Overview</i> appears, depending on which work area you entered. If several task lists exist in the system for the chosen selection criteria, these are displayed in the table.
Choose <i>Task list headers</i>	The screen <i>EWB: Headers Overview</i> appears
Choose <i>operations</i>	The screen <i>EWB: Operations Overview</i> appears
Choose <i>inspection characteristics</i>	The screen <i>EWB: Inspections Characteristics Overview</i> appears

5. To copy or create an inspection plan, proceed as follows:

	Copy an inspection plan	Create an inspection plan
a)	Enter the desired task list type and the new task list group into the context block.	Choose <i>Create</i> .
b)	Select the required copy model and choose <i>Copy</i> .	



You also can create an inspection plan by entering the required data into the context block and choosing *Continue*.

6. If a dialog box *EWB: Process Using* appears, you have to enter a key date or a change number.
7. If you copy a task list, a screen appears, on which you can define the context of the target text. If you want to copy on several levels, you must set the *Multi-level copy* indicator.

Creating and Copying an Inspection Plan

8. Enter the required data in the tab page for the header data (tab pages *Header general* and *Quality management*) or in the [Header Details \[Ext.\]](#). You can change the default values.
9. Choose *Task Lists* → *Operations*.

The [operation overview \[Ext.\]](#) appears.



Before creating operations you have to enter the identification of the applicable task list in the context block.

10. Create the required operations.
11. To create the required [inspection characteristics \[Ext.\]](#) for each operation, choose *Task lists* → *Inspection characteristics*.



Before creating inspection characteristics you have to enter the identification of the applicable operation in the context block.

12. To assign test equipment to an inspection characteristic, from the inspection characteristic overview, choose *Task Lists* → *Production resources and tools*.



Before assigning items of test equipment you have to enter the identification of the applicable operation in the context block.

13. Save the data.

The system writes all the data of your worklist to the database.



To delete an inspection plan, select the inspection plan to be deleted in the *Task List Overview* and choose *Delete*.

Processing of Header Data

Processing of Header Data

Purpose

In the task list header, you define data that is to be valid for the entire inspection plan (for example, task list group, usage, status, deletion flag, dynamic modification parameters, definition of inspection points, details for engineering change management).

Prerequisites

The master records used (for example, material master record, dynamic modification rule) must exist in the system and must have been released.

Process Flow

1. You call up the overview screen for task list headers or the header detail screen.
2. You enter the following data:
 - Group counter (can be assigned by the system)
 - Text for the group counter
 - Plant
 - Deletion flag (if the inspection plan is to be deleted in the next archiving run)
 - Task list usage (required field)
 - Task list status (required field)
 - The planner group or department responsible and the planned work center (optional)
 - Lot size (required field)
 - Old task list number (optional)
 - Definition of inspection points (optional)
 - Information for sample-drawing procedure (optional)
 - Information for dynamic modification (optional)
 - Whether the external numbering of units to be inspected is allowed (optional)
 - Data for the change rule and change type (optional)
3. You create a long text for the inspection plan, if required.
4. You assign one or more materials to the inspection plan, using the *Material-task list assignment*.
5. Save the data.

Result

The inspection plan you created is uniquely identified by the following information, which is contained in the plan at header level:

Field	What You Should Know
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Processing of Header Data

<i>Plant</i>	Defines the organizational unit, in which the inspection plan was created
<i>Task list group</i>	Alphanumeric identification that is entered by you, or given by the system Similar task lists are collected in a task list group.
<i>Group counter</i>	Together with the task list group, this uniquely identifies the inspection plan. Each group counter stands for a group of operations, to which you can assign inspection characteristics.
<i>Use</i>	Indicates where the inspection plan is used (for example in a goods receipt inspection or in an inspection during production).
<i>Planner group</i>	People who are responsible for the processing of the inspection plan.

See also:

[Engineering Change Management \[Ext.\]](#)

Processing Header Data

Processing Header Data

Use

In the inspection plan header, you define data that applies to the entire inspection plan.

Prerequisites



The master records used (for example, material master record, dynamic modification rule) must have been created and released in the system.

Procedure

1. Call the *Header Overview* or the *Header Details* screen
2. Process the following data on the tab page *Header general*:
 - Task list group
 - Group counter
 - Short text for the task list
 - From lot size ... To lot size...
 - Plant
 - Long text for the task list
 - Task list usage
 - Task list status
 - Planner group
 - Old task list no. (number, that the inspection plan was given in the “old system”)
 - Deletion flag (you set this indicator if you want to delete the task list in the next [archiving run \[Ext.\]](#)).
 - Change rule (you enter the change procedure that is to be used when the inspection plan is processed)
 - Change type
3. Process the following data on the tab page *Quality management*:

Field/Screen Area	What You Should Know
<i>Inspection points</i>	You can activate inspection points [Page 24] in the task list to define that inspections must take place in intervals based on, for example, time or quantity.
<i>Sample-drawing proc.</i>	You enter the sample-drawing procedure to be used.

Processing Header Data

<p><i>Dynamic mod. level</i></p>	<p>You enter the level, at which you want to define dynamic modification parameters. You can specify whether dynamic modification is to take place at characteristic, inspection lot, or inspection type level. You cannot dynamically modify at header and characteristic level of the task list. You can make an entry in this field, depending on the task list usage.</p> <p></p> <p>If you dynamically modify at inspection type level with a task list, the dynamic modification rule that is defined in the inspection setup [Ext.] is used. This allows dynamic modification to take place, based on inspection type when you use the same task list.</p>
<p><i>Modification rule</i></p>	<p>You enter the dynamic modification rule [Ext.] to be used. You can make an entry in this field, depending on the task list usage.</p> <p></p> <p>Dynamic modification in conjunction with a calibration inspection (task lists in Plant Maintenance) is not supported.</p>
<p><i>Dynamic modification criteria</i></p>	<p>If you want to use dynamic modification (with a task list) at inspection lot or inspection type level, you can define additional dynamic modification criteria, such as vendor or manufacturer. These criteria can then be included in the sample determination procedure.</p>
<p><i>Ext. numbering</i></p>	<p>You define whether external numbering of single values is to take place, when you record results and whether this numbering is to be unique.</p>



The authorization for entering QM data at header level is controlled by the authorization object for the characteristics contained in the task list. All other data is controlled by the authorization objects for inspection plans or routings.

4. Choose *Task Lists* → *Material-task list assignments*.
5. Assign the required materials to the inspection plan.
6. Save the data.

The system writes all the data of your worklist to the database.

Additional Functions on the Header Overview Screen

Function	Pushbutton/Menu Path	What You Should Know
Creating task list header	<i>Create</i> pushbutton	You can create a new task list.

Processing Header Data

Changing task list header	<i>Change/Lock</i> pushbutton	You read the header data for the selected task list from the database into your worklist and therefore protect this data from being accessed by other users.
Displaying task list header	<i>Display/Unlock</i> pushbutton	You write the header data of the selected task list from the your worklist to the database and therefore unlock this data for access by other users.
Copying task list header	<i>Copy</i> pushbutton	You can copy the header data to use it in a different task list.
Multi-level copying of task list header	<i>Multi.level copy</i> pushbutton	You can copy the header data to use it in a different task list. All objects belonging to this task list (for example, operations, PRTs, inspection characteristics) are also copied.
Printing task list	<i>Print</i> pushbutton	You can print the task list.
Deleting task list header	<i>Delete</i> pushbutton	You can delete the header data and therefore the whole task list.
Switch to the first task list header	<i>First record</i> pushbutton	If you have selected several task lists, you switch to the header detail screen for the first task list you selected.
Switch to the previous task list header	<i>Previous record</i> pushbutton	If you have selected several task lists, you switch to the header detail screen for the previous task list you selected.
Switch to the next task list header	<i>Next record</i> pushbutton	If you have selected several task lists, you switch to the header detail screen for the next task list you selected.
Switch to the last task list header	<i>Last record</i> pushbutton	If you have selected several task lists, you switch to the header detail screen for the last task list you selected.
Assigning materials to the task list	<i>Task Lists</i> → <i>Material-task list assignments</i>	You switch to the material-task list assignments overview, where you can assign one or several material(s) to the task list.
Switch to the operation overview screen	<i>Task Lists</i> → <i>Operations</i>	You switch to the operation overview.
Switch to the production resources and tools overview screen	<i>Task Lists</i> → <i>production resources and tools</i>	You switch to the production resources and tools overview screen.
Switch to the inspection characteristics overview screen	<i>Task Lists</i> → <i>Inspection characteristics</i>	You switch to the inspection characteristics overview.

Processing Header Data

Switch to the dependent characteristic specifications overview screen	<i>Task Lists → Dependent characteristic specifications</i>	You switch to the dependent characteristic specifications overview screen, where you can assign customer-, vendor- and/or material-specific inspection specifications to an inspection characteristic.
Displaying detail screen	<i>Goto → Details</i>	You switch to the detail screen of the selected task list(s).
Displaying key date	<i>Extras → Key date</i>	You can display the key date and change it, if necessary.
Displaying change number	<i>Extras → Change number</i>	You can display the change number and change it, if necessary.
Displaying effectivity parameters	<i>Extras → Effectivity parameters</i>	You can display the effectivity parameters and change them, if necessary.
Displaying selection criteria	<i>Extras → Selection criteria details</i>	You can display the chosen selection criteria.
Displaying work area	<i>Extras → Working area details</i>	You can display the chosen working area.

Inspection Point

Inspection Point

Definition

An inspection point is an identifiable record of inspection results that is assigned to a work or inspection operation. Several inspection points can be assigned to an inspection operation.

Use

With inspection points, you can have several inspections and can record multiple sets of characteristic results for an operation.

Inspection Points for Inspections During Production

If you **inspect during production** using routings, rate routings or master recipes and you want to record inspection results in specific intervals, choose the inspection point type *Free inspection points in production*. You can define your own field combinations for this inspection type in [Customizing \[Ext.\]](#).

Inspection Points in Goods Receipt

If you carry out **goods receipt inspections** with inspection points, choose the inspection point type *Free inspection points in production*. You can create your own field combinations for this inspection type in Customizing.

Inspection Points in Plant Maintenance

If you carry out **calibration inspections** and want to record inspection results for equipment or functional locations, choose the inspection point type for *Equipment* or *Functional location*. You can create your own field combinations for these inspection types in Customizing. However, the field *Equipment* or *Functional location* must exist in the field combination.

Inspection Points in Sample Management

If you use the **sample management** functions in a goods receipt inspection, or inspection during production with planned physical samples, each sample number is uniquely identified by an inspection point. Choose the inspection point type *Physical sample*. You can create your own field combinations for this inspection type in Customizing. However, the field *Sample* must exist in the field combination.

Integration

Inspection Point Data in Planning Objects

- **Task lists**

You enter the inspection point field combination for inspection point processing at header level. You can enter the following additional data: Sample-drawing procedure for the inspection point type for a *Physical sample*, partial lot assignment in the routing

At operation level, you enter how the inspection point is to be valuated, when you record results. Either you make the valuation manually, or the system makes it automatically. In addition, you enter a reference for the inspection point, (quantity reference, time reference, freely defined reference)

- **Sampling procedures**

In each sampling procedure that you reference at characteristic level in an inspection plan, you must have also set the indicator for inspection point processing.

Inspection Point Data in Customizing

To identify inspection points, you can define a combination of fields in [Customizing \[Ext.\]](#). In such a field combination, user-defined fields as well as fixed fields based on the inspection point type are defined with individual key words and an individual sequence. You can, for example, use key words such as “Container”, “Barrel” or “Pallet” for the inspection point *Free inspection points* and for example “model” for the inspection point type *Physical sample*. If this task list is used in an inspection, the chosen field combination appears on the initial screen for results recording.

Data in the Routing/Inspection Plan Header

In the task list header (of application components PP and PI), you can set detail levels for assigning the produced quantities.

- At the first and most detailed level (“Partial lots not supported”), the produced partial quantities are assigned to the inspection points, for which inspection results are also recorded.
- At the second detail level (“Partial lot for each inspection point”), the partial quantities that were assigned to the inspection points are combined into partial lots.
- At the third detail level (“Partial lot and batch for each insp. point”), the partial lots are collected in batches.

You then have the following options for defining the partial lot assignment:

- In the [task list header \[Ext.\]](#), if you do not make an entry in the partial lot assignment field, the settings are taken from [Customizing \[Ext.\]](#). If no value is defined in Customizing, this means that partial lots are not supported.
- If you define a partial lot assignment in the partial lot assignment field of the task list header, this assignment takes precedence over the values defined in Customizing.

Processing Inspection Point Data in the Task List

Processing Inspection Point Data in the Task List

Use

With inspection points, you can have several inspections and can record multiple sets of characteristic results for an operation.

Prerequisites

To Record Insp. Results for Insp. Points	Choose the Following Task List Type
In an inspection during production	Routing
At a goods receipt	Inspection plan
In sample management	Inspection plan or routing

Procedure

1. Call the task list header overview.
2. Choose the tab page *Quality management*.
3. Choose *Details* (optional).
4. In the screen section *Parameters for dynamic modification/inspection points* of the *Header Details* screen select an inspection point to activate the inspection based on inspection points, if necessary.
5. Choose *Task Lists* → *Operations*.
6. In the operation overview, select the operation, for which you want to define inspection points and choose tab page *Quality management*.
7. Choose in the *Insp.pointCompletion* column a variant for the inspection point completion and a reference (for routings).
8. Choose *task Lists* → *Inspection characteristics* and create the inspection characteristics for the operation.



You can only assign sampling procedures with an active indicator for an inspection point type to an inspection characteristic. You can also enter the inspection frequency in the sampling procedure.

9. Save the data.

The system writes all the data of your worklist to the database.

Processing Material-Task List Assignments

Use

To use an inspection plan for inspecting materials, you must assign one or more materials to it.

Prerequisites

- You create the link between the material type and the task list type in [Customizing \[Ext.\]](#).
- The unit of measure for the material is the same as the unit of measure defined in the task list header.

Procedure

1. Choose *Task Lists* → *Material-task list assignments*.

The material-task list assignments overview screen appears.

2. Edit the following for each assignment:

Field	What You Should Know
<i>Group counter</i>	You enter the group counter of the inspection plan, to which this material-task list assignment is to apply.
<i>Material</i>	You enter the material, to which this material-task list assignment is to apply.
<i>Plant</i>	You enter the plant for the material, to which this material-task list assignment is to apply.

3. If required, edit the following additional data for each assignment:

Field	What You Should Know
<i>Vendor</i>	You can also make assignments that are based on a combination of material and vendor and/or a customer. If necessary, use the input help.
<i>Customer</i>	You can also make assignments that are based on a combination of material and vendor and/or a customer. If necessary, use the input help.



When an inspection lot is created, the system calls the task list for inspecting a material that corresponds most closely to the material/task list allocation. The following hierarchy applies:

- Material/Customer/Vendor
- Material/Customer
- Material

4. Choose *Continue*.

The system checks the assignments.

Processing Material-Task List Assignments



If there are no errors, the new assignments are added to the list of existing assignments.

5. To delete a material-task list assignment, place the cursor on the corresponding assignment and choose *Delete*.

The data record for the dependent characteristic specifications is deleted immediately, or on the key date for the change number, depending on whether you delete with a change number.

Result

The system writes all the data of your worklist to the database.

Processing of Operations

Purpose

You use operations to describe individual inspection steps in an inspection plan. You define the work center, at which the inspection takes place and the default values for the inspection. You can describe how the inspection is to take place in the text for the inspection operation.

In an inspection plan, the inspection operation is identified by an operation ID and a number. The sequence of inspection operation numbers determines the sequence, in which you process the inspection operations for an inspection plan. You define the increment for these inspection operation numbers in the [Profile \[Ext.\]](#). You use the control key to define how an inspection operation in an inspection plan is to be managed.

Prerequisites

- The header data for the inspection plan is already defined in the system.
- The master records used (for example, work center) must have been created and released in the system.
- The unit of measure defined in the header of a reference operation set that is to be referenced is the same as the unit of measure in the existing inspection plan.

Process Flow

1. You call up the operation overview for the inspection plan.
2. You create the required inspection operations. You can then link to reference operation sets to simplify data entry.
3. You can enter the following data:
 - Operation number (required field)
 - Work center (optional)
 - Plant (required entry field, if a work center was entered)
 - [Control keys \[Ext.\]](#) (required field)
 - Standard text key (optional)
 - Description of the operation (optional)
 - Base quantity (required field)
 - Unit of meas. for op. (required field)
 - Long text for the operation (optional)
 - [Scheduling \[Ext.\]](#) data
4. You can enter the following data on the tab page *Quality management*:
 - Recording view (optional)
 - Inspection point completion (obligatory when inspection points are defined in the task list header)

Processing of Operations

- Inspection point reference (in routing)
5. Save the data.



You can delete an operation at any time.

The authorization for entering QM data at operation level is controlled by the authorization object for the characteristics contained in the task list.

Result

You have created an inspection plan with operations, to which you can assign [inspection characteristics \[Ext.\]](#).

Processing Inspection Operations

Use

You use inspection operations to describe individual inspection steps in an inspection plan and to define the work center and the default values for an inspection.

Prerequisites

- The header data for the inspection plan is already defined in the system.
- The master records used (for example, work center) must have been created and released in the system.
- The unit of measure defined in the header of a reference operation set that is to be referenced is the same as the unit of measure in the existing inspection plan.

Procedure

1. Choose *Task Lists* → *Operations*.
2. Choose the tab page *Operations general*.
3. Process the required operations. You can link to [reference operation sets \[Page 35\]](#) to simplify data entry.
4. Enter in the operations overview screen or in the operations detail screen of the tab page *Operations general* for example the following data:

Field	What You Should Know
<i>Operation ID</i>	You can enter an operation ID. The operation ID must contain at least one non-numerical character. If you do not enter an operation ID, the system generates one automatically. An operation ID generated by the system only contains numerical values. After you have created an operation you can no longer change its operation ID.
<i>Operation</i>	You define the operation number used for determining the order of the operations. You can overwrite the proposed value.
Work center/Plant [Page 37]	You define the place where the inspection is to take place or the person responsible for carrying out the inspection. You can overwrite the proposed entry for the plant.
Control key [Ext.]	The control key defines the business relevance of the operation. Make sure that the <i>Inspection characteristics</i> indicator is set in Customizing [Ext.] .
<i>Standard text key</i>	The standard text key provides a default for the description of an operation. This key simplifies data entry.
<i>Short text</i>	You enter a describing short text for the operation.
<i>Long text</i>	You enter a describing long text for the operation.

5. Choose the tab page *Quality management* and enter for example the following data:

Processing Inspection Operations

<i>Recording view</i>	You enter the recording view that is to appear when you confirm inspection results.
<i>Insp.pointCompletion</i>	You enter the reference and the type of valuation for the inspection point. If you have defined inspection points in the task list header, this is a required entry. You can overwrite the proposed entry.

6. Choose the tab page *Processing time* and enter for example the following data:

<i>Base quantity</i>	You define the base quantity for the material to be manufactured. The default values for the operation relate to this quantity. You can overwrite the proposed value.
<i>Operation unit</i>	You define the unit for the material to be manufactured. You can overwrite the proposed value.
<i>Convert units of measure</i>	You define, how to convert the units for the material defined in the task list header into the operation units.

7. Choose the detail screen of the tab page *User fields* and enter a user-specific field key (template for keywords (field name) for user-defined fields).

8. Save the data.

The system writes all the data of your worklist to the database.



The authorization for entering data at operation level is controlled by the authorization object for the characteristics contained in the task list.

Additional Functions on the Operations Overview Screen

Function	Pushbutton/Menu Path	What You Should Know
Creating operation	<i>Create</i> pushbutton	You can create a new operation.
Changing operation	<i>Change/Lock</i> pushbutton	You read the selected operation data from the database into your worklist and therefore protect this data from being accessed by other users.
Displaying operation	<i>Display/Unlock</i> pushbutton	You write the selected operation data from the your worklist to the database and therefore unlock this data for access by other users.
Copying operation	<i>Copy</i> pushbutton	You can copy the operation data to use it in a different operation.
Multi-level copying of operation	<i>Multi-level copy</i> pushbutton	You can copy the operation data to use it in a different operation. All objects belonging to this operation (for example, PRTs, inspection characteristics) are also copied.

Processing Inspection Operations

Deleting an operation	<i>Delete</i> pushbutton	You can delete the selected operations. All objects belonging to this operation (for example, PRTs, inspection characteristics) are also deleted.
Referencing a reference operation set	<i>Create reference to reference op. set</i> pushbutton	When you create an inspection operation, you can reference one or several reference operation set(s).
Referencing a work center operation set	<i>Create reference to work center op. set</i> pushbutton	When you create an inspection operation, you can reference one or several work center operation set(s).
Printing task list	<i>Print</i> pushbutton	You can print the task list.
Switch to the first operation	<i>First record</i> pushbutton	If you selected several operations, you switch to the first operation, which was selected.
Switch to the previous operation	<i>Previous record</i> pushbutton	If you selected several operations, you switch to the previous operation, which was selected.
Switch to the next operation	<i>Next record</i> pushbutton	If you selected several operations, you switch to the next operation, which was selected.
Switch to the last operation	<i>Last record</i> pushbutton	If you selected several operations, you switch to the last operation, which was selected.
Assigning materials to the task list	<i>Task Lists</i> → <i>Material-task list assignments</i>	You go to the material-task list assignment [Page 27] , where you can assign one or several material(s) to the task list.
Switch to the task list header overview screen	<i>Task Lists</i> → <i>Headers</i>	You switch to the task list header overview.
Switch to the production resources and tools overview screen	<i>Task Lists</i> → <i>Production resources and tools</i>	You switch to the production resources and tools overview screen.
Switch to the inspection characteristics overview screen	<i>Task Lists</i> → <i>Inspection characteristics</i>	You switch to the inspection characteristics overview.

Processing Inspection Operations

Switch to the dependent characteristic specifications overview screen	<i>Task Lists → Dependent characteristic specifications</i>	You switch to the dependent characteristic specifications overview screen, where you can assign customer-, vendor- and/or material-specific inspection specifications to an inspection characteristic.
Displaying detail screen	<i>Goto → Details</i>	You switch to the detail screen of the selected operation(s).
Displaying key date	<i>Extras → Key date</i>	You can display the key date and change it, if necessary.
Displaying change number	<i>Extras → Change number</i>	You can display the change number and change it, if necessary.
Displaying effectivity parameters	<i>Extras → Effectivity parameters</i>	You can display the effectivity parameters and change them, if necessary.
Displaying selection criteria	<i>Extras → Selection criteria details</i>	You can display the chosen selection criteria.
Displaying work area	<i>Extras → Working area details</i>	You can display the chosen working area.
Updating mass changes	<i>Extras → Mass changes</i>	In all selected operations you can replace your data with different values.

Linking a Reference Operation Set

Use

When creating an inspection operation, you can link to one or several reference operation sets.



You can create where-used lists for reference operation sets and if required, replace these sets with others in one or several operation(s) in inspection plans.

If you change the referenced operation set, this change is also made in the inspection plan.

If you subsequently want to make changes to the data in the inspection operation, you must first cancel the link to the reference operation set (unlock).

Prerequisites

You can only link to a reference operation set if:

- It has *Released (general)* status
- The unit of measure that was defined in the header of the set agrees with the unit of measure that was entered in the inspection operation that you want to create.

You have not yet made any entries in the inspection operation fields. If you enter data, the system assumes that the inspection operation has already been created and does not therefore allow the use of a reference operation set.

Procedure

1. In the operation overview screen, choose the *Create Reference to reference op. set* pushbutton.

A dialog box for creating links to a reference operation set appears.

2. Enter the following data:

Field	What You Should Know
<i>Operation ID</i>	You enter the operation ID of the operation that you want to create with the help of the reference operation set. The operation ID must contain at least one non-numerical character. If you do not enter an operation ID, the system generates one automatically. An operation ID generated by the system only contains numerical values. After you have created an operation you can no longer change its operation ID.
<i>Operation number</i>	You enter the operation number that you want to create with the help of the reference operation set.
<i>Standard text key</i>	Default for an operation description; optional entry.
<i>Interval</i>	You enter the increment for operation numbers when the reference is created. You can overwrite the proposed value. This is only relevant, if several operations exist.

Linking a Reference Operation Set

<i>Task list group</i>	You enter the task list group of the reference operation set to be linked.
<i>Group counter</i>	You enter the group counter for the reference operation set to be linked. You can overwrite the proposed value.

3. Choose *Continue*.

The system copies the operations you chose with their corresponding information into the operation overview. The linked reference operation set is included with one operation number. A symbol indicates, that this operation is a link to a reference operation set or a work center operation set. The data fields are not ready for input. At the bottom of the operation overview the linked operations of task list type S are listed. They are marked by a special symbol.



You cannot enter values in the new fields in the operation overview. This means, that you can not process the data of this operation.

4. Save the data.

The system writes all the data of your worklist to the database.

Assigning Work Centers

Use

If you assign a particular work center to an inspection operation, you can confirm the activities performed in the inspection operation. The appraisal costs are determined in the *Controlling (CO)* application component with the help of the confirmed activity times.

Prerequisites

For you to be able to confirm the activities for an inspection operation, the following conditions must be fulfilled:

- You must assign a work center to the inspection operation.
- The work center must be assigned to a cost center in the CO component.
- The cost center must define different activity types (such as, set up, machine or labor times) and a rate must be defined for each activity type.
- A QM order must be assigned in the [inspection setup \[Ext.\]](#).

Procedure

1. In the operation overview, enter a control key for the inspection operation. This key is configured in [Customizing \[Ext.\]](#) as follows:
 - The *Cost indicator* is set
 - The type of confirmation was defined
2. Enter a work center for the operation on the *Operations general* tab page.

On the *Processing time* tab page additional data fields are displayed in the screen section *Standard values*.
3. Enter the following data in the additional fields, as required:
 - Unit for the activity type (hours, minutes etc.)
 - Activity types to be confirmed (for example, set up, machine or labor times)

Result

You can record and settle the costs incurred in the inspection.

See also:

[Quality-Related Costs \[Ext.\]](#)

Processing of Inspection Characteristics

Processing of Inspection Characteristics

Purpose

You use inspection characteristics to describe what is to be inspected and how the inspection is to take place. Inspection characteristics are assigned to inspection operations and are identified within an operation by a number.

To standardize processes, you can reference or copy master inspection characteristics. You can also copy inspection characteristics from other inspection plans into the current inspection operation or use reference operation sets.

Prerequisites

- The operation must be created in the system.
- The master records used (for example, inspection method, dynamic modification rule, sampling procedure, sampling scheme, code groups, selected sets, production resources/tools) have been created and released in the system.
- In the basic data, the master inspection characteristic must have been created as:
 - A *Reference characteristic*, if it is to be referenced
 - A *Complete copy model*, if it is to be changed in the task list without first having to be unlocked
 - At least as an *Incomplete copy model*, if it is to be copied into the task list

Process Flow


1. You call up the inspection characteristic overview for the inspection plan.
2. Create the required inspection characteristics. You can use the following functions. You can:
 - Enter all data for an inspection characteristic manually.
 - Reference a [master inspection characteristic \[Ext.\]](#) (reference characteristic), to simplify data entry.
 - Copy a master inspection characteristic (complete or incomplete copy model) to simplify data entry.
 - Enter a standard text key (defined in Customizing) for a inspection characteristic. The system then automatically enters the data predefined in the standard text key into the required entry fields.
 - Enter a tolerance key on creation of a quantitative inspection characteristic. The system then automatically enters certain quantitative data according to the values predefined in the tolerance key.



By double-clicking on the desired fields (for example, characteristic number, short text), you switch to the corresponding detail screens.

3. You can enter the following data:

Processing of Inspection Characteristics

- Characteristic number (required field)
 - Proposal for characteristic control indicator (optional, defined in Customizing)
 - Quantitative or qualitative characteristic (you must make one entry)
 - Characteristic category (optional characteristic, conditional characteristic, required characteristic)
 - Recording type
 - Additional [control indicators \[Ext.\]](#) for the characteristic (optional)
 - Internal characteristic ID. (You can store an additional characteristic description in this field. This description is used to identify a characteristic during electronic exchange of characteristic values; optional)
 - Data origin. (You use this field to assign a data source such as, handheld application, quality certificate. The system then copies data from this source; optional)
 - Master inspection characteristic (optional) with plant and version for the characteristic (required entry field, if a master inspection characteristic was specified)
 - Short text for the inspection characteristic (optional)
 - Long text for the inspection characteristic (optional)
 - Tolerance key (optional)
 - Dependent characteristic specifications (optional)
 - Information for inspection method (name, plant, version)
 - Selected set (for qualitative characteristics with characteristic attributes)
 - Formula (optional, for quantitative characteristics)
 - Partial sample (optional)
 - Info fields (optional)
4. Enter the following additional data, as required:
- Information for [quantitative data \[Ext.\]](#) (for example, SPC criteria, plausibility limits)
 - Information for [catalogs \[Ext.\]](#) (for example, defect codes in case of rejection)
 - Information for the sample (for example, sampling procedures, dynamic modification rules)
5. You assign an item of test equipment to the inspection characteristic as a [production resources/tool \[Ext.\]](#) (PRT), if you want to inspect with particular test equipment.
- 
- The test equipment must first be assigned to the operation as a production resource/tool.
6. Save the data.

Processing of Inspection Characteristics



The authorization for entering data at inspection characteristic level is controlled by the authorization object for the characteristics contained in the task list.

Result

You have created an inspection plan with inspection characteristics that you can use in inspections.

Processing Inspection Characteristics

Use

You use inspection characteristics to describe what is to be inspected and how the inspection is to take place.

Prerequisites

- The operation must be created in the system.
- The master records used (for example, inspection method, dynamic modification rule, sampling procedure, sampling scheme, code groups, selected sets, production resources/tools) have been created and released in the system.
- In the basic data, the [master inspection characteristic \[Ext.\]](#) must have been created as:
 - A *Reference characteristic*, if it is to be referenced
 - A *Complete copy model*, if it is to be changed in the task list without first having to be unlocked
 - At least as an *Incomplete copy model*, if it is to be copied into the task list

Procedure

1. Choose *Task Lists* → *Inspection characteristics*.
2. Enter a key date or a change number in the screen section *Process using*.
3. Choose the *Inspection chars gen* tab page and copy the operation ID of that operation to the context block, for which you want to create inspection characteristics.
4. Create the required inspection characteristics. By entering the characteristic description, you can link to master inspection characteristics to simplify data entry.



A symbol indicates, that this characteristic is a referenced master inspection characteristic. The data fields are not ready for input. To make changes to this inspection characteristic, you must first unlock the master inspection characteristic. Select the required inspection characteristic and choose *Inspection characteristics* → *Cancel master insp. charact. reference*.

5. Enter the following data on the tab page *Inspection chars. gen.*:

Field	What You Should Know
<i>Inspection Characteristic</i>	You enter the number of the inspection characteristic; you can define the default increment for this inspection characteristic number in the profile [Ext.] .
<i>Short text insp. char.</i>	You enter a description for the inspection characteristic.

Processing Inspection Characteristics

<i>Characteristic ID</i>	Internal characteristic ID. (You can store an additional characteristic description in this field. This description is used to identify a characteristic during electronic exchange of characteristic values; optional)
<i>Data origin</i>	Data origin. (You use this field to assign a data source such as, handheld application, quality certificate. The system then copies data from this source; optional)
<i>Preset indicators</i>	Default values for control indicators [Ext.] to simplify data entry. You can change these values in the inspection characteristic, except if the <i>Fixed</i> indicator is set in the control key. Depending on the control key you entered, some fields in the inspection characteristic overview are not ready for input or are set to "required entry field".
<i>Quantitative charact. or Qualitative charact.</i>	You define the inspection characteristic as quantitative or qualitative characteristic.
<i>Master inspection characteristic</i>	You enter the identifier for the master inspection characteristic that you want to reference or copy. The system selects the current version of the master inspection characteristic. If a master inspection characteristic is used both in an inspection plan and a material specification, then the inspection characteristics from the material specification take precedence over those in the inspection plan, if the corresponding material is being inspected.
<i>Plant</i>	You enter the plant for the master inspection characteristic. You can overwrite the proposed value.
<i>Version</i>	You enter the version for the master inspection characteristic. If you do not enter a version number, the current version of the characteristic is assigned.
<i>Inspection method</i>	You enter the name of the inspection method [Ext.] that you want to use to inspect the inspection characteristic. For referenced master inspection characteristics, you can select an inspection method from the list of inspection methods assigned to the master inspection characteristic. For other master inspection characteristics, you can assign any released inspection method. If an inspector qualification [Ext.] has been defined in the inspection method, the system copies the qualification from the inspection method.
<i>Plant</i>	You enter the plant for the inspection method.
<i>Version</i>	You enter the version for the inspection method.
<i>Weighting of charact.</i>	By choosing the applicable entry, you classify the inspection characteristic to be a critical characteristic, a major characteristic or a minor characteristic.
Inspector qualif [Ext.]	You define the qualification, the inspector must have and, if necessary, validate in order to be able to conduct an inspection.

Processing Inspection Characteristics

<i>Share calculation</i>	Code that identifies the procedure for the share estimation (share of nonconforming units, share below the tolerance range, share above the tolerance range).
<i>Tolerance key</i> (for quantitative inspection characteristics)	Default for tolerance values that can contain target values, units of measurement, accuracy and the specification limits. You can use the Tolerance key [Ext.] to include DIN norm specifications that are defined in Customizing [Ext.] .
<i>Long text</i>	You enter a descriptive long text for the inspection characteristic.
<i>InfoField 1</i> <i>InfoField 2</i> <i>InfoField 3</i>	You can enter information for the inspection characteristic.

6. Choose the *Control indicator* to specify the inspection characteristic in more detail.

Different screens for editing the control indicators appear, depending on the characteristic type that you have defined, (qualitative or quantitative). Information relating to the sample calculation, results recording, inspection scope, determination of the characteristic type and details for a long-term inspection is linked to these [control indicators \[Ext.\]](#).

7. For processing a quantitative characteristic choose the *Quantitative data* tab page.

If you did not enter all data on the *Inspection chars. gen.* tab page, you can complete this data here (for example, unit of measurement, number of decimal places, target value, specification limits, tolerance key, formula for a calculated characteristic).

8. Choose the tab page *Catalogs*.

If you did not enter all data on the *Inspection chars. gen.* tab page, you can complete this data here (for example, selection sets assigned, code groups assigned, defect codes in case of rejection).

9. Choose the tab page *Sample*.

If you did not enter all data on the *Inspection chars. gen.* tab page, you can complete this data here (for example, sampling procedure assigned, dynamic modification rule assigned).



You can only enter a dynamic modification rule, if you have specified dynamic modification at characteristic level in the task list header.

7. Save the data.

The system writes all the data of your worklist to the database.



The authorization for entering data at inspection characteristic level is controlled by the authorization object for the characteristics contained in the task list.

Processing Inspection Characteristics

Additional Functions on the Inspection Characteristics Overview Screen

Function	Pushbutton/Menu Path	What You Should Know
Creating an inspection characteristic	<i>Create</i> pushbutton	You can create a new inspection characteristic, if you entered an operation ID and a key date or a change number. On the <i>Inspection chars. gen.</i> tab page lines are ready for input.
Changing an inspection characteristic	<i>Change/Lock</i> pushbutton	You read the selected inspection characteristic data from the database into your worklist and therefore protect this data from being accessed by other users.
Displaying an inspection characteristic	<i>Display/Unlock</i> pushbutton	You write the selected inspection characteristic data from your worklist to the database and therefore unlock this data for access by other users.
Copying an inspection characteristic	<i>Copy</i> pushbutton	You can copy the inspection characteristic data to use it in a different inspection characteristic.
Multi-level copying of an inspection characteristic	<i>Multi-level copy</i> pushbutton	You can copy the inspection characteristic data to use it in a different inspection characteristic. All objects belonging to this inspection characteristic (for example, PRTs, dependent characteristic specifications) are also copied.
Deleting an inspection characteristic	<i>Delete</i> pushbutton	You can delete the selected inspection characteristics. All objects belonging to this inspection characteristic (for example, PRTs, dependent characteristic specifications) are also deleted.
Printing inspection characteristics	<i>Print</i> pushbutton	You can display the selected inspection characteristics in a variable list and you can print this list.

Processing Inspection Characteristics

Switch to first inspection characteristic	<i>First record</i> pushbutton	If you selected several inspection characteristics, you switch to the first inspection characteristic that was selected.
Switch to previous inspection characteristic	<i>Previous record</i> pushbutton	If you selected several inspection characteristics, you switch to the previous inspection characteristic that was selected.
Switch to next inspection characteristic	<i>Next record</i> pushbutton	If you selected several inspection characteristics, you switch to the next inspection characteristic that was selected.
Switch to last inspection characteristic	<i>Last record</i> pushbutton	If you selected several inspection characteristics, you switch to the last inspection characteristic that was selected.
Assigning materials to the task list	<i>Task lists</i> → <i>Material-task list assignment</i> or double-click on the symbol for material	You go to the material-task list assignment [Page 27] , where you can assign one or several material(s) to the task list.
Switch to the task list header overview screen	<i>Task Lists</i> → <i>Headers</i> or double-click on the symbol for task list header	You switch to the task list header overview.
Switch to the operation overview screen	<i>Task Lists</i> → <i>Operations</i> or double-click on the symbol for operation	You switch to the operation overview.
Switch to the production resources and tools overview screen	<i>Task Lists</i> → <i>Production resources and tools</i>	You switch to the production resources and tools overview screen.
Switch to the dependent characteristic specifications overview screen	<i>Task Lists</i> → <i>Dependent characteristic specifications</i> or double-click on the symbol for inspection characteristic	You switch to the dependent characteristic specifications overview screen, where you can assign customer-, vendor- and/or material-specific inspection specifications to an inspection characteristic.
Displaying detail screen	<i>Goto</i> → <i>Details</i> or double-click on the required row	You switch to the detail screen of the selected inspection characteristic(s).
Displaying key date	<i>Extras</i> → <i>Key date</i>	You can display the key date and change it, if necessary.
Displaying change number	<i>Extras</i> → <i>Change number</i>	You can display the change number and change it, if necessary.

Processing Inspection Characteristics

Displaying effectivity parameters	<i>Extras → Effectivity parameters</i>	You can display the effectivity parameters and change them, if necessary.
Displaying selection criteria	<i>Extras → Selection criteria details</i>	You can display the chosen selection criteria.
Displaying work area	<i>Extras → Working area details</i>	You can display the chosen working area.

Quantitative Data

Depending on the control keys set, you can determine specific quantitative data for quantitative characteristics. You call this function by choosing the *Quantitative data* tab page at characteristic level.

- For example, if defined when processing the control keys that a lower and an upper specification limit is to be inspected, fields for entering both specification limits are displayed on the *Quantitative data* tab page.
- However, if you defined that only the lower or the upper specification limit is to be inspected, only the relevant field for the specification limit is displayed.
- If you are using a tolerance key, the system copies the values of this key into the inspection characteristic. You can overwrite these values.



A tolerance key is used to define centrally tolerance limits (for example, for fits) usual in practice or industry for a quantitative inspection characteristic. For the tolerance key the unit of measurement, target value, precision, lower and upper specification limit are defined.

Your system consultant can define nominal values for the tolerance keys in [Customizing \[Ext.\]](#). The nominal values are based on tables in the DIN standards. If nominal values were defined for a tolerance key, then the specification limits may vary on the basis of these nominal values.

You enter the tolerance key on the *Inspection chars. gen* tab page or on the *Quantitative data* tab page. If you check the data, after you have entered it, the values for the unit of measurement and target value that were defined for this tolerance key, are also displayed. In addition, if the relevant indicators are set in Customizing, the system determines whether the specification limits related to the target value.

If you delete a tolerance key, the values defined by this key in the inspection characteristic are not deleted. They remain as characteristic values.

Use of Calculated Characteristics

Use of Calculated Characteristics

Use

If you inspect with quantitative inspection characteristics, you can use calculated characteristics if you want the system to calculate inspection results from the inspection results of other inspection characteristics (calculation input characteristics) according to a predefined formula.

Prerequisites

Take the following points into account to ensure that the characteristics can be calculated by the system correctly:

- Compatibility of characteristics
The calculation input characteristics and the calculation characteristics must, for example, be compatible with regard to the results to be confirmed and the inspection scope.
- Dynamic modification at characteristic level (optional)
It is advisable to enter a dynamic modification rule in a calculated characteristic or a calculation input characteristic and then to reference the other characteristic for dynamic modification.

Features

Unlike other inspection characteristics, the results of a calculated characteristic are not recorded manually.

In results recording, you process and value the calculation input characteristics. The system then uses the predefined formula to calculate the inspection results for the calculated characteristic, based on the inspection results for the calculation input characteristics.

You define this formula in the calculated characteristic, when you enter it in the inspection plan. You can use standard mathematical functions in this formula, as well as the following operands:

- Numerical constants
- Formula parameters that reference the values and results of calculation input characteristics.
Calculation input characteristics and calculated characteristics must be contained in the same operation.
- Formula parameters that call external function modules.
In certain cases, an input value for a calculated characteristic may not be available in the current operation (for example, if you want to use a value contained in another inspection lot). In this case, you can use your own function module to call the necessary data and calculate the input value



In [Customizing \[Ext.\]](#) you can find default values for the formula parameters that you can supplement.

Activities

- Make sure that the *Calculated characteristic control indicator [Ext.]* is set for the inspection characteristic.
- On the [quantitative data \[Ext.\]](#) screen, enter the formula. When entering the formula, use the following guidelines:
 - Use the format **ppnnnn** for the operands and parameters.

The value **pp** stands for the formula parameter (for example A0). The value **pp** stands for the number of the task list characteristic (for example, characteristic 0010).

For example, to multiply the value of characteristic 10 (measured value of a single unit) by the value of characteristic 20 (measured value of a single unit), enter the following formula: A00010 * A00020.
 - If the formula parameter references a function module, you can enter a formula parameter without a characteristic number.
 - To select a formula parameter that is defined in Customizing, use the input help for the formula field.
 - You can use the result for the calculated characteristic as a calculation input value for a second calculated characteristic.

Use of Leading and Dependent Characteristics

Use of Leading and Dependent Characteristics

Use

To ensure that there is no conflict between the inspection stages for a characteristic in an operation, define leading and dependent characteristics.

You use leading and dependent characteristics in connection with:

- **Dynamic modification at characteristic level**

The system determines the appropriate inspection stage using the specifications in the dynamic modification rule and updates the stage in the quality level for the characteristic.

- **Recording results**

If you accept some characteristics and reject others, inspection characteristics in an operation may have different inspection stages, for example, some characteristics are in the “skip” stage, while others are in the “normal” or “tightened” stage.

If the current inspection stage for a leading characteristic requires a “skip,” but a skip is not allowed for one of the dependent characteristics because of its characteristic weighting (defined in [Customizing \[Ext.\]](#)), the skip only applies to the leading characteristic. The dependent characteristic must be inspected after the **next** inspection stage contained in the dynamic modification rule for the leading characteristic.

- **Calculated characteristics**

If the two input characteristics have different inspection stages, the system cannot calculate the characteristics correctly.



A calculated characteristic depends on the values or results of two input characteristics. If these have different inspection stages (for example, “normal” and “skip”), the system cannot calculate the formula in the calculated characteristic because one of the input characteristics is not inspected (in a “skip” stage).

Prerequisites

- The following must be available in the system:
 - Dynamic modification rule
 - Sampling procedures
- The leading characteristic must be a required characteristic.
- A dynamic modification rule is assigned to the leading characteristic.
- The leading characteristic does not reference another leading characteristic (not checked by the system).

Activities

- In the inspection plan header, you define dynamic modification at characteristic level.

Use of Leading and Dependent Characteristics

- On the inspection characteristic overview screen, mark the inspection characteristic that you want to define as the leading characteristic for the operation.
- You set the indicators *Sampling procedure* and *Required characteristic* in the control indicators for this inspection characteristic.
- Enter the required data for the characteristic.
- You enter a dynamic modification rule for the inspection characteristic.
- You mark all other inspection characteristics in the operation (or in the characteristic group) that you want to be treated as dependent inspection characteristics.



You can assign the same leading characteristic to different dependent characteristics in an operation. You can create several characteristic groups within an operation.

- On the sample screen, do not enter a dynamic modification rule as before, but enter the number of the leading characteristic.
- If you use calculated characteristics in an inspection plan, only enter a dynamic modification rule for the calculated characteristic. Reference the calculated characteristic as a leading characteristic in the calculation input characteristics.

Assignment of Dependent Characteristic Specifications

Assignment of Dependent Characteristic Specifications

Use

For both qualitative and quantitative characteristics you can define dependent characteristic specifications, based on a combination of material, vendor, and customer, if these combinations have been assigned to the inspection plan.



You **cannot** define dependent characteristic specifications for master inspection characteristics referenced in inspection plans or for inspection characteristics in reference operation sets.



In inspection plan “Pipes”, there is a measurement inspection operation with several inspection characteristics. One of these characteristics, “diameter”, has several dependent characteristic specifications, depending on the type of pipe.

Material	Target Value	Lower Specification Limit	Upper Specification Limit
Pipe 1	4.5	4.0	5.0
Pipe 2	7.5	7.0	8.0
Pipe 3	8.2	7.0	9.4
Pipe 4	5.0	4.0	6.0

When you inspect pipes, the system checks whether dependent characteristic specifications exist in the inspection plan for pipes. If this is the case, the system then uses these dependent characteristic specifications in the inspection. If there are no dependent characteristic specifications in the inspection plan, at the inspection the system uses the values defined for the inspection characteristic.

Prerequisites

One or more [materials \[Page 27\]](#) are assigned to the inspection plan. You can make an assignment at any stage during processing of an inspection plan.

Activities

- On the inspection characteristic overview screen, you select the requested inspection characteristic or you enter in the context block the inspection characteristic, to which you want to assign dependent characteristic specifications.
- You choose *Task list* → *Dependent characteristic specifications*.
The overview of the dependent characteristic specifications appears.
- You choose the tab page *Dependent characteristic specs general* and select the required combination of material, vendor and customer using the input help.
- You choose the tab page *Quantitative data* and enter the dependent characteristic specifications (for example, specification limits and target values) for quantitative inspection characteristics.

Assignment of Dependent Characteristic Specifications

If you define dependent characteristic specifications for a quantitative characteristic, you can use a tolerance key.

- You choose the tab page *Catalogs* and enter the dependent characteristic specifications (for example, selected sets, defect code in case of rejection).
- To delete existing dependent characteristic specifications, mark the required assignment and choose *Delete*.

Editing Test Equipment

Editing Test Equipment

Procedure

You assign one or more items of test equipment as [production resources/tools \[Ext.\]](#) (PRT), if you want to inspect with particular test equipment.

Use

You assign one or more items of test equipment to an operation or assign test equipment to an inspection characteristic, to determine the particular test equipment you want to use for the inspection.

Prerequisites

The used test equipment master data record must have been created and released in the system.

Procedure

5. Choose *Task Lists* → *Production resources and tools*.
6. Copy into the context block the operation ID from that operation, to which you want to assign the test equipment.
7. Enter a key date or a change number in the screen section *Process using*.
8. Choose *Create*.
 A screen appears, in which you can select the required PRT-type.
9. Select the required PRT-type and choose *Continue*.
7. Enter on the tab page *Material, Equipment, Document, Others, Dates* all required data for the test equipment.
8. Save the data.

The system writes all the data of your worklist to the database.

Additional Functions on the PRT Overview Screen

Function	Pushbutton/Menu Path	What You Should Know
Creating a production resource/tool	<i>Create</i> pushbutton	You can assign a new production resource/tool, if you entered an operation ID and a key date or a change number.
Changing a production resource/tool	<i>Change/Lock</i> pushbutton	You read the selected PRT data from the database into your worklist and therefore protect the data from being accessed by other users.

Editing Test Equipment

Displaying a production resource/tool	<i>Display/Unlock</i> pushbutton	You write the selected PRT data from your worklist to the database and therefore unlock the data for access by other users.
Copying a production resource/tool	<i>Copy</i> pushbutton	You can copy the data from the production resource/tool to use it in a different production resource/tool.
Deleting a production resource/tool	<i>Delete</i> pushbutton	You can delete the selected production resource/tools.
Printing production resource/tool	<i>Print</i> pushbutton	You can display the selected production resource/tools in a variable list and you can print this list.
Switch to first production resource/tool	<i>First record</i> pushbutton	If you selected several production resource/tools, you switch to the first production resource/tool, which was selected.
Switch to previous production resource/tool	<i>Previous record</i> pushbutton	If you selected several production resource/tools, you switch to the previous production resource/tool, which was selected.
Switch to next production resource/tool	<i>Next record</i> pushbutton	If you selected several production resource/tools, you switch to the next production resource/tool, which was selected.
Switch to last production resource/tool	<i>Last record</i> pushbutton	If you selected several production resource/tools, you switch to the last production resource/tool, which was selected.
Assigning materials to the task list	<i>Task lists</i> → <i>Material-task list assignment</i> or double-click on the symbol for material	You go to the material-task list assignment [Page 27] , where you can assign one or several material(s) to the task list.
Switch to the task list header overview screen	<i>Task Lists</i> → <i>Header</i> or double-click on the symbol for task list header	You switch to the task list header overview.
Switch to the operation overview screen	<i>Task Lists</i> → <i>Operations</i> or double-click on the symbol for operation	You switch to the operation overview.
Switch to the inspection characteristics overview screen	<i>Task Lists</i> → <i>Inspection characteristics</i>	Switch to the inspection characteristics overview screen.

Editing Test Equipment

Switch to the dependent characteristic specifications overview screen	<i>Task Lists → Dependent characteristic specifications</i> or double-click on the symbol for inspection characteristic	You switch to the dependent characteristic specifications overview screen, where you can assign customer-, vendor- and/or material-specific inspection specifications to an inspection characteristic.
Displaying detail screen	<i>Goto → Details</i> or double-click on the required row	You switch to the detail screen of the selected production resource/tool(s).
Displaying key date	<i>Extras → Key date</i>	You can display the key date and change it, if necessary.
Displaying change number	<i>Extras → Change number</i>	You can display the change number and change it, if necessary.
Displaying effectivity parameters	<i>Extras → Effectivity parameters</i>	You can display the effectivity parameters and change them, if necessary.
Displaying selection criteria	<i>Extras → Selection criteria details</i>	You can display the chosen selection criteria.
Displaying work area	<i>Extras → Working area details</i>	You can display the chosen working area.

Changes to Task List Objects

Use

You use this function to change existing task list objects (for example, inspection characteristic or operation).

Prerequisites

You can change task list objects with one of the following:

- Key date
- Change master record

Features

Changing Without a Change Number

When you change an task list object and enter a date in the *Key date* field in the screen section *Process using*:

- The old values in the task list object are overwritten by new values
- The change is backdated to the valid-from date for the task list object. This means that the key date only serves to select the task list that is to be changed.
- A change document is created. This document records all changes to the task list.

Changing with a Change Number

To change a task list object with a change number, enter a change master record number in the *Change number* field in the screen section *Process using*.

When you change a task list object with a change master record,

- A record containing the new values is written to the database. For example, if you change the target value and specification limits of an inspection characteristic, a new characteristic record is written to the database
- The valid-from date in the new database record is the date contained in the change master record
- The system lists all the changes to the task list (all changes to individual fields)

Maintaining a Revision Level for a Task List

If your company maintains several versions of a material that are only distinguished by [revision levels \[Page 59\]](#), you can create and edit corresponding inspection plan variants for these materials. In this way, the system can automatically select the appropriate inspection plan for an inspection, whenever such a material is subject to a goods receipt inspection.

Creating Change Documents

You use the change document function to record changes to inspection plans. The change documents are listed in chronological order. In the change document, changes are structured according to task list level (header, operation, inspection characteristic).

Changes to Task List Objects

Activities

Changing with a Change Number

- With the [engineering change management \[Ext.\]](#) function, you create a change master record, in which you enter the objects to be changed (such as, material, inspection plan). The system assigns a change number to the change master record.
- Use the change number to make the required changes to the material in the material master and assign a revision level to the material.
- You call up the function for changing an inspection plan or reference operation set.
- Make the changes to the original inspection plan and save it.
- You choose *Logistics* → *Quality management* → *Quality planning* → *Inspection planning* → *Inspection plan*, enter selection criteria and choose *Execute*.
- The system displays a list of all changes to the plan in chronological order. For changes that were made with a change number, the “old” and “new” version of the entries is shown.
- You print this list (menu path: *List* → *Print*) or save the list as a PC-file (menu path: *List* → *Save* → *File...*).

Changing Without a Change Number

- You call up the function for changing an inspection plan or reference operation set.
- Make the changes to the original inspection plan and save it.
- You choose *Logistics* → *Quality management* → *Quality planning* → *Inspection planning* → *Inspection plan* → *Change documents*. On the initial or selection screen, enter the selection criteria and choose *Execute*.
- The system displays a list of all change documents that have been created.
- In the list, mark the change document you require and choose *Choose*.
- The system displays the change document you have chosen, containing all the changes that took place.
- You print the change document (menu path: *List* → *Print*) or save it as a PC-file (menu path: *List* → *Save* → *File...*).

Use of Revision Levels

Use

In discrete production processes, assembly parts are often modified slightly, so they can be used in the manufacture of other similar products. In many cases, the company must keep both the original and modified parts in stock for production purposes. Instead of assigning a new plant number to the modified part, both parts retain the same number, but are assigned different revision levels (for example, original part = revision level "A" and modified part = revision level "B").

Features

If the modification does not affect the inspection of the part, you can use the existing inspection plan to inspect both the original and modified parts.

However, if the new part has to be inspected differently as a result of the modification, you must create a new version of the inspection plan that takes into account the revised inspection procedures. This can be done by assigning a new revision level to the existing plan and making the required changes to this new version of the inspection plan.

In this way, if an order is placed for the material with a revision level, the system automatically selects the appropriate inspection plan when a delivery of new parts is received.

Activities

- With the [engineering change management \[Ext.\]](#) function, you create a change master record, in which you enter the objects to be changed (such as, material, inspection plan). A change number is assigned to the change master record.
- Use the change number to make the required changes to the material in the material master and assign a revision level to the material.
- Make the changes to the original inspection plan with a change number and save.

If you create an inspection lot with a revision level, the key date for selecting the inspection plan is taken from the *Valid from* date of the change number that forms the basis of the revision level (example 1).



You changed characteristic 10 in an operation for the 01.03.1999 with the revision level A. You later change the same inspection characteristic with revision level B, so that it is valid on the 01.04.1999.

	Inspection of Characteristic 10	Revision Level Used in Inspection
Example 1	On 01.05.1999	Revision level at 01.04.1999 (level B)
Example 2	On 01.04.1999 with revision level A	Revision level at 01.03.1999 (level A)



When you change the inspection plan, the system creates new versions of the changed inspection plan objects (for example, inspection plan header, operation,

Use of Revision Levels

inspection characteristic) and stores the change number and key date in these objects. The key date indicates when the changes come into effect.

Consistency Check for Inspection Plans

Use

If you create or change an inspection plan, the system cannot automatically check all dependencies between:

- Inspection plan headers and inspection characteristics
- Operations and inspection characteristics
- Different inspection characteristics
- Inspection characteristics and production resources/tools
- Dependent characteristic specifications and inspection characteristics
- Dependent characteristic specifications and production resources/tools
- Dependent characteristic specifications and material/task list assignments

As a result, when you are creating or editing an inspection plan, inconsistencies can occur. Such inconsistencies can in certain circumstances only be removed at a later date, once the production sequence is fixed. For this reason, you can specify when certain consistency checks are to be performed.

Features

The system performs a consistency check in regard to QM-specific data for the selected (or all) task list headers. The check is performed on a key date.

During the task list check, the system checks the consistency of the following elements and issues error messages (inconsistency causes problems during inspection processing), warning messages (inconsistency can cause problems in inspection processing), or information messages (inconsistency does not require direct handling). There is detailed information about these messages in the message long text of the log.

- **Entire Inspection Plan**

Examples of inconsistencies:

- The indicator for inspection characteristics is set in the control key of an operation; however, no inspection characteristics exist for this operation.
- The indicator for inspection characteristics is not set in the control key of an operation; however, inspection characteristics exist for this operation.
- No inspection point type has been entered in the chosen sampling procedure, although the inspection plan specifies an inspection with inspection points.
- Inspection points have been entered in the inspection plan header, although neither time nor quantity has been specified in the inspection operation.
- Results recording by unit to be inspected has been defined in the inspection operation. No inspection characteristics with single-value recording or without dependent multiple samples have been included in the inspection plan.
- The unit of measure for the sample cannot be converted into the base unit of measure for the material.

Consistency Check for Inspection Plans



The system performs the consistency check on the **key date**.

- **Inspection Characteristics**

Examples of inconsistencies:

- The formula is incorrect. As a result, automatic value calculation is not possible.
- Calculated characteristics reference invalid characteristics.
- There is no required characteristic as a leading characteristic for at least one conditional characteristic.
- Leading characteristics are assigned to other leading characteristics.
- The inspection characteristic references a production resource/tool that has been deleted in the meantime.
- The dynamic modification criteria defined at inspection characteristic level cannot be used for the chosen inspection plan usage.
- A master inspection characteristic or class characteristic appears repeatedly.
- Although automatic defects recording is defined, no defect code has been defined in an inspection characteristic.
- Sample processing using inspection points has been defined in the inspection plan header. As a result, the long text for the sample-drawing procedure is overridden by the text from the inspection plan header, or the units of measure for the sample and partial samples do not correspond.

- **Dependent Characteristic Specifications**

Examples of inconsistencies:

- Dependent characteristic specifications reference invalid material/plan assignments
- Data from dependent characteristic specifications are inconsistent with control indicators from the inspection characteristics.
- The assigned production resource/tool was deleted in the meantime.

Activities

- Choose *Task list check* on the task list overview.
- The system checks the consistency of the inspection plan and records any generated messages in a consistency log.
- To display the list of messages, choose *Extras* → *Log*.