

Calypso Macros



An introduction to macros in
Calypso



What is a Calypso Macro?



A set of elements used to facilitate measuring tasks in Calypso.

For instance:

- Identical components in an assembly
Valve seat geometry in an engine block.
- Multiple similar but fundamentally varied geometries
stepped cylinders, rows of holes with increasing radius.
- Common tasks that are required for many different parts.
Bolt hole patterns, Dove tails

Macro Basics



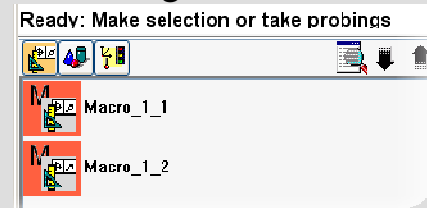
Macros are managed just like a group of features or characteristics in Calypso.

When inserted into a measurement plan, a macro will be displayed as an icon and its name is formed by the macro measurement plan name followed by an incremental number. Macros can later be renamed just like any other object in Calypso.



Features and Characteristics embedded in macros follow a similar naming convention. A feature in a macro named “Circle1” will be accessed in your measurement plan as “Macro_Name.Circle1”

Macros are assigned a reference system when “integrated” into a measurement plan. The reference system determines what the nominal in the macro are in relation to. This can be any alignment that is not directly used in creating the macro.



Macro Basics continued



Features and characteristics contained in macros are directly accessible in a measurement plan but they cannot be edited.

PCM can be used in macros but is not necessary for macro development or use.

Parameters used in macros are differentiated from PCM parameters by pre-pending the macro name to the parameter. A parameter "A" in the macro "test" would be accessed in a measurement plan as "test.a"

Macros are not referenced when integrated into a measurement plan, this means that if you change a macro, you have to update the macro in the measurement plan for the changes to be reflected. This can be done automatically via system settings, or manually.

Using Macros in Calypso



There are 5 procedures you need to be aware of to use macros in Calypso

- Defining settings for macros
- Creating the macro
- Integrating a macro into a measurement plan
- Editing a macro
- Updating a macro.

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Defining Settings for Macros



When you create, edit, save, or modify a macro, Calypso uses pre defined settings to determine what will happen.

Select **File -> Macro -> Settings**

Update

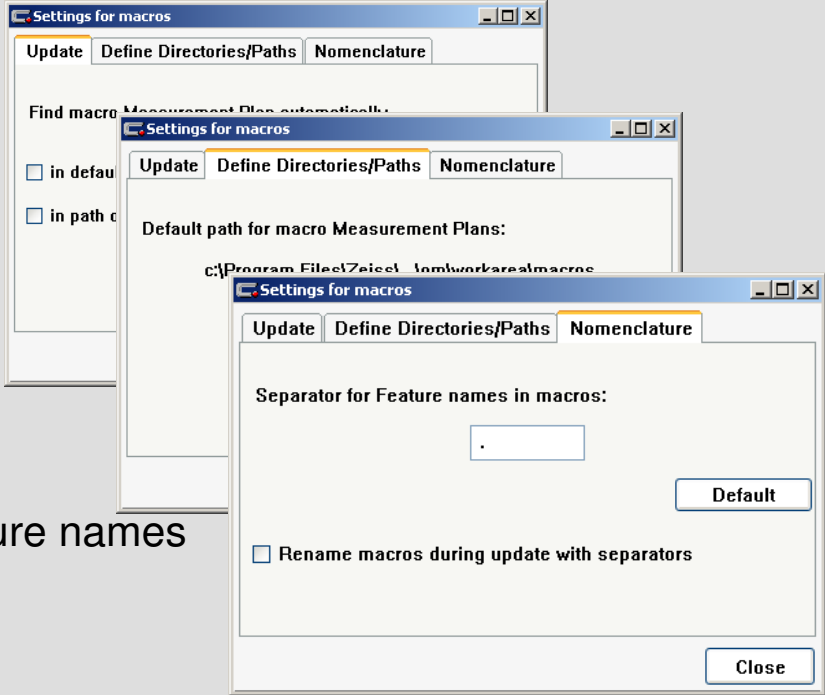
Search paths for updating a macro

Define Directories/Paths

Default path for saving macros

Nomenclature

Separator between macro names and feature names
For newly created and updated macros



Defining Settings for Macros

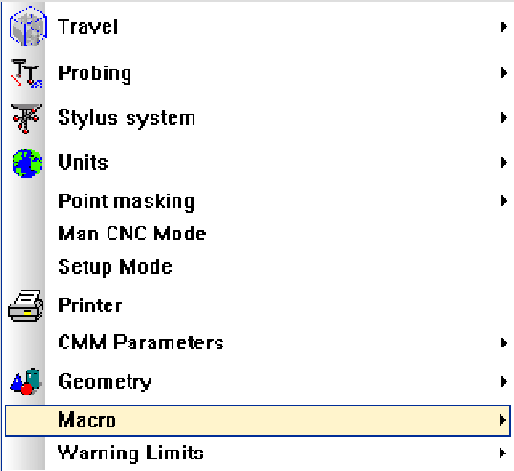


Additional Settings can be found in Feature Settings editor

Update Macros at every CNC start:

On: All macros integrated in the measurement plan are updated automatically at each cnc start prior to any measurement

Accept settings from macro when updating macro:



On: When updating macros, parameters such as Stylus, RT Position, and Warning limit which may have been set in the program are overwritten

Off: Changes made to Stylus RT Position and Warning limit which have been changed in the plan will remain unchanged. New elements in the macro will come in with the macro settings as programmed.

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- **Creating the macro**
- Integrating a macro into a measurement plan
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Creating the Macro



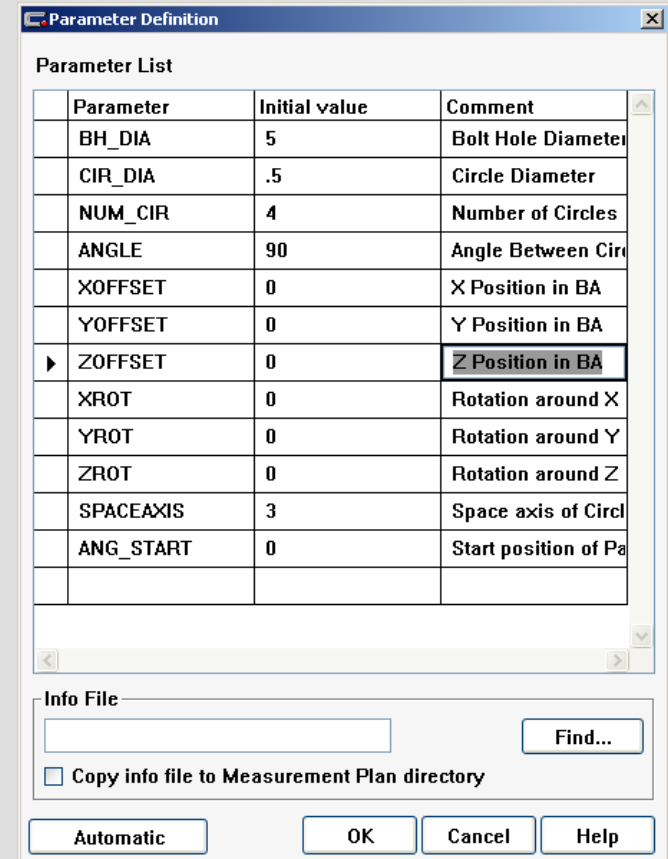
To create a macro, you first start by creating a measurement plan like normal. Depending on the nature of the macro, you may or may not wish to define a base alignment or clearance data.

Open the measurement plan you wish to create a macro from.

Select **File -> Macro -> Define Macro Parameters** and edit the list of macro parameters.

To create a listing of all variables used in the macro click “Automatic”, and assign a default value for each parameter. These are the parameters that will make our macro flexible. Not all macros require parameters.

Now Click **File -> Macro -> Save Plan as Macro** and the macro is created



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Integrating a macro into a measurement plan



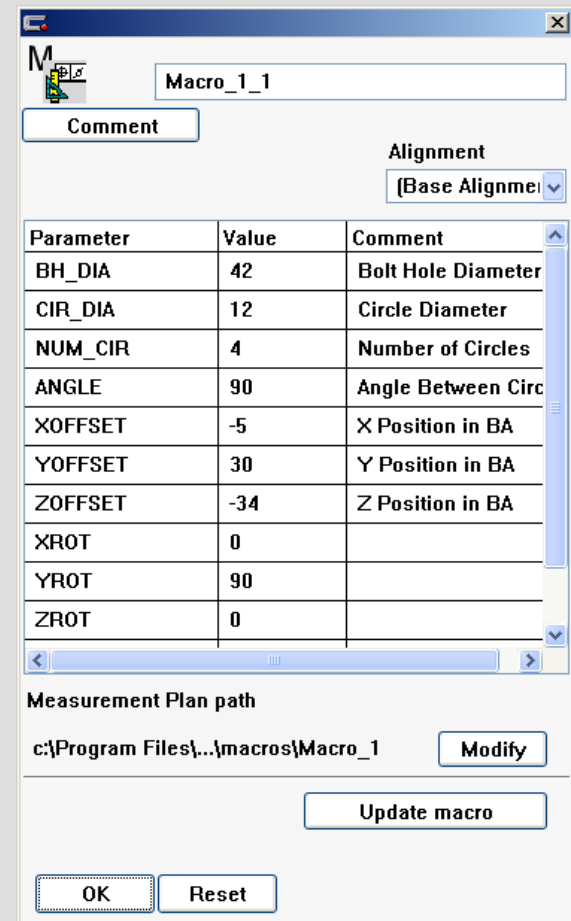
By integrating the macro into your measurement plan, it enables you to measure and evaluate all of the elements that were programmed inside the macro. By inputting any parameters and selecting the reference system that the macro is to be assigned you customize the macro to this specific plan.

To Integrate click **File -> Macro -> Integrate Macro**

Then select the macro program from your list.

You will then be presented with the parameter list you defined when you created the program. Fill the parameters out properly and select the reference system and select OK and the graphics will update displaying the geometry in the macro.

Note: Parameters can also be PCM or formulas



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- Updating a macro.

Editing a macro



You edit a macro just as you would edit any other measurement plan with the exception of how you open one, and how you save one.

To open your macro for editing select **File -> Macro -> Open Macro Measurement Plan**

Your macro is now open for editing. Make any changes you would like and then when finished Select **File -> Macro -> Save Measurement Plan as Macro**

This will save the macro in your macro folder.

Note: When making changes to a macro, the changes are not updated to inspection plans using this macro unless they are set up to automatically update or manually updated.

Using Macros in Calypso



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- Defining settings for macros
- Creating the macro
- Integrating a macro into a measurement plan
- Editing a macro
- **Updating a macro.**

Updating a Macro



What happens during the macro update?

If you have set **Accept settings from macro when updating macro** to **On** under **Macro** in the **Measurement Plan Editor Features**, all changes of the macro measurement plans are transferred to the macros integrated in the current measurement plan.

If you have set **Accept settings from macro when updating macro** to **Off** under **Macro** in the **Measurement Plan Editor Features**, the settings, such as styli, RT position and warning limits, which may have been modified in the measurement plan will *not be overwritten*.

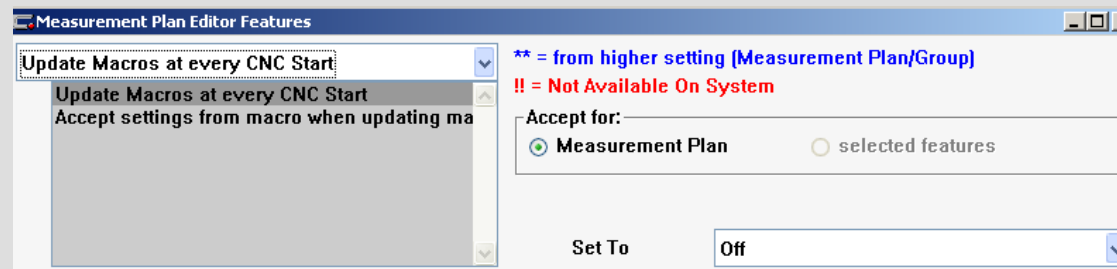
Updating a Macro



What happens during the macro update?

If set **Accept settings from macro when updating macro** to **On** under **Macro** in the **Measurement Plan Editor Features**, all changes of the macro measurement plans are updated in the macros integrated in the current measurement plan.

If you have set **Accept settings from macro when updating macro** to **Off** under **Macro** in the **Measurement Plan Editor Features**, the settings, such as styli, RT position and warning limits, which may have been modified in the measurement plan will *not be overwritten*.



Updating a Macro



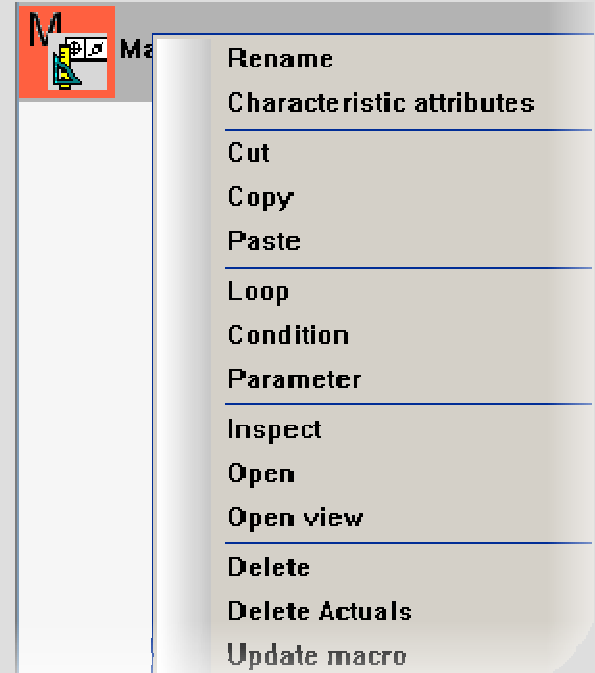
There are different ways to update a macro

Right click on an individual macro in either the feature list or characteristic list and select **Update Macro**

To update all macros in a measurement plan, select **File -> Macro -> Update all Macros**.

To have macros update automatically In the **Measurement Plan Editor Features**, select the **Macro -> Update Macros at every CNC Start** menu item.

Note: If you have activated the **Rename macros during update with separators** check box in the **Settings for macros**, the feature names will also be changed in the macros according to the current definition.



Additional Information



More information on macros can be found in the help menu, online documentation, and in the Metrology Portal at www.zeiss.com/mt