Components

Components are seen as subroutines and/or macros user specifically created in respective CNC-programming systems.
The following only focuses on components.

The user is able to control the existing components including variables with this technology.

Now with imos CAM 11.0 it is possible to individually control the components on the basis of certain properties (part name, machining properties).

We have attempted to keep the content of the document complete, accurate and under permanent review.
However, due to the continuous development of described software, it is not possible to guarantee up to date and accurate information, integrity or quality of the content at all times.
As far as we are able to detect errors or omissions or those, which have been reported to us, our attempt is to correct these with the following versions.
imos is not responsible for any direct or indirect damages caused by the use or non-use of the presented information or through the use of faulty and incomplete information. The descriptions in this document can be changed at any time without prior notice.

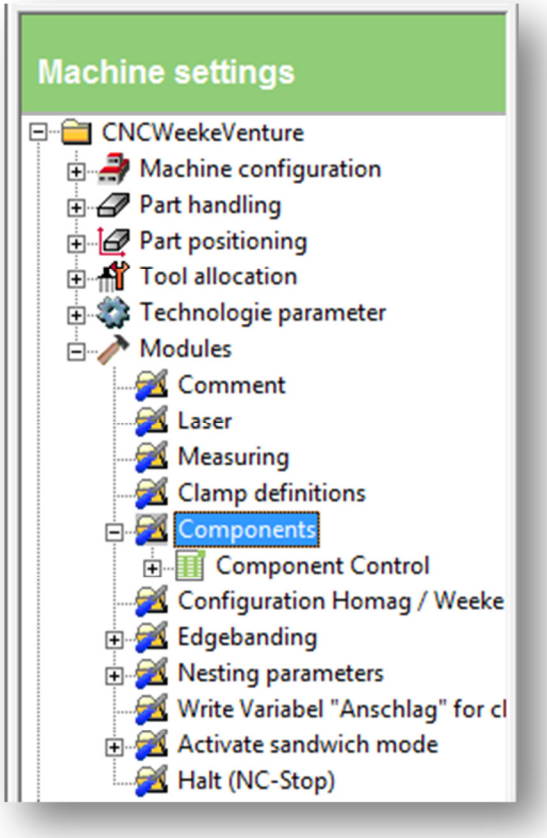
Creation date: June 2015
Used Version: 12.0; Standard CAM Installation mit einer CNC Weeke Venture Maschine

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1. Navigation

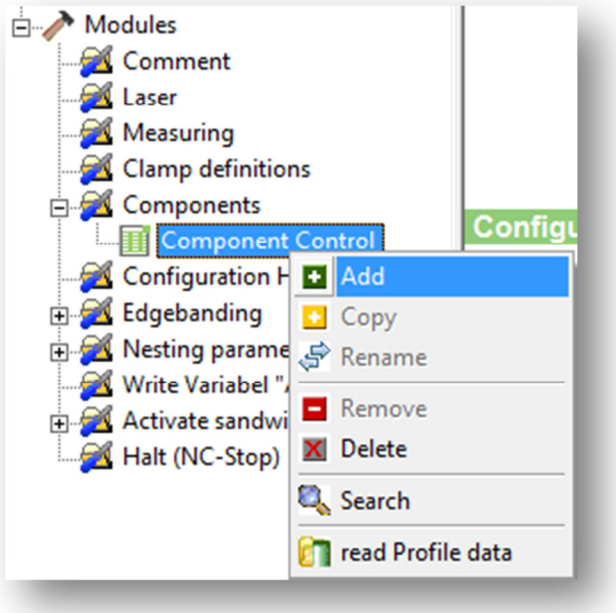
The **components** are in the **modules** of the **CAM Manager**.



Components in the CAM Manager

2. Create new components

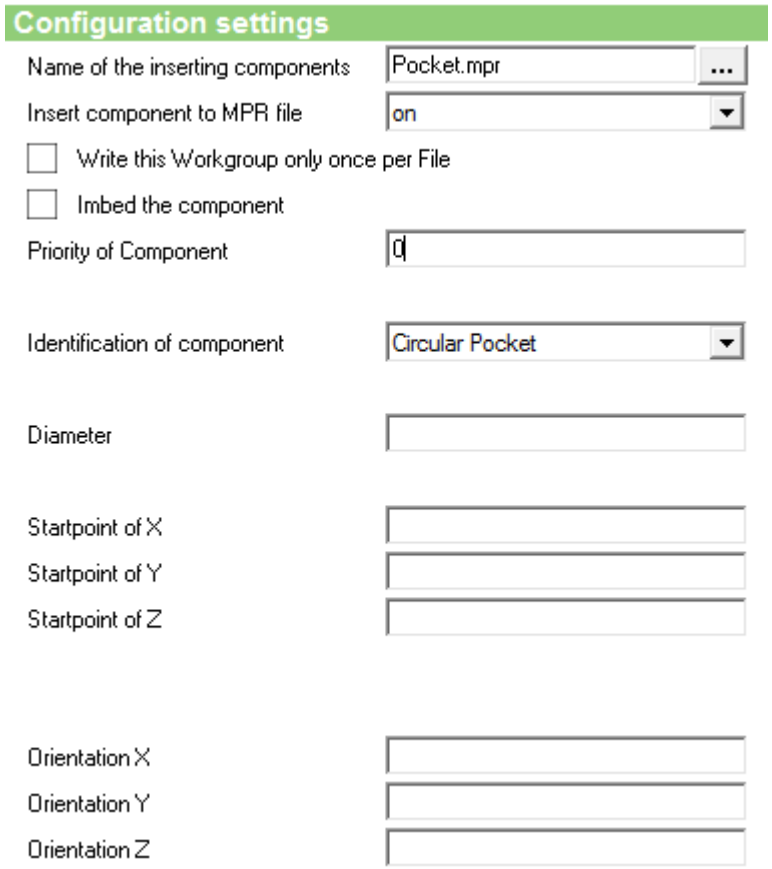
For creating a component, the component tree must be opened. Afterwards a new component can be added by right clicking on the **component list**.



The applied name has nothing to do with the name of the component to be controlled, because it is only applied in the CAM Manager, which is then entered below the tree.

Practical tip:
Please, consider before creating a component to take clear names in the CAM Manager or select due to the uniqueness the same name as in your programming system.

The **configuration settings** can be defined on the right side for the new created components.



2.1 Header section of the configuration settings

In the top section of the configuration settings the properties for the components are defined:

Description	Explanation
Name of the inserting components	The name of the component is entered here. For example, this can be **imos_Lineboring.mpr**.  imos\imos_Lineboring.mpr can also be written if there is a subfolder in the component folder.
Insert components in MPR- File	Here you can select if the components should be **inserted** (in), if the components are **not inserted** (out) or if they should be transferred **greyed out** (greyed out).  The function **greyed out** is not available for every manufacturer.
Insert only once components in MPR- File	With an activated checkbox the components are only written once in the program even if the machining has to appear several times.
Imbed components	With an activated checkbox the components are imbedded in the CNC-Program. This means that if the program is called for the first time, then the complete component is written in the program.  This is only possible for certain Wop Systems.
Priority of components	Defines where a component should be inserted.  With the priority **1** is **the lowest** and **100** is **the highest**. If a **-1** is entered, then

the component is not inserted.

An example for this is if e.g. component A and component B have the same identification characteristics, then only one component can be inserted.
With the support of the priority the importance can be controlled.

If a component is inserted on the basis of the machining group, no priority can be allocated, because the component would be always inserted then.

2.2 Identification fields in the configuration settings

In the middle section of the **configuration setting** the **identification fields** can be defined.



These define when with which machining the components should be inserted and with which machining property (diameter, insertion point in X etc.).

In addition to simple values formulas can also be applied.

2.2.1 Example for a formula

2.2.1.1 Operators mathematical and logical

As operators following possibilities for the identification fields can be applied:

Comparative operators

Operator	Explanation
<	Less than
<=	Less than or equal
>	Greater than
>=	Greater than or equal
=	Equal
<>	Unequal

Logical operators

Operator	Explanation
AND	And
OR	Or

2.2.1.2 AND Formula



Example	Explanation
%DIA >= 9.5 AND %DIA <=9.70	The **%DIA** sets the value of the machining from imos. The formula means: If the machining **%DIA** less/equal „**>=**“ comparative value 9.5 and **„AND“** the machining „**%DIA**“ less/equal „**<=**“ comparative value „9.70“, then the component is inserted.

2.2.1.3 OR Formula



Example	Explanation
%DIA >= 8 OR %IPX <=1065	If the diameter %DIA greater equal „>=“ 8 or „OR“ the insertion point „IPX“ less equal „<=“ 1065, then the component is inserted.

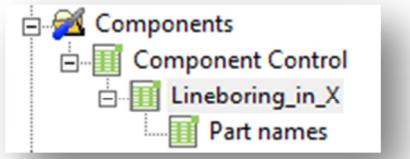
2.2.2 Variables for identification fields

Following variables can be applied for the identification fields:

Description	Explanation
%DE	Depth of the machining
%B	Width of the machining
%L	Length of the machining
%RAD	Radius of the machining
%DIA	Diameter of the machining
%TL	Length of the machining with lock pockets and cut faceplates
%WI	Depth of the machining with lock pockets and cut faceplates
%FACT	Number of drilling in the lineboring (this is only evaluated with lineboring)
%OFFS	Here the grid for lineboring is transferred (e.g. 32, 64 etc.)
%SPX	Start point in X
%SPY	Start point in Y
%EPX	End point in X
%EPY	End point in Y
%IPX	Insertion point in X
%IPY	Insertion point in Y
%IPZ	Insertion point in Z

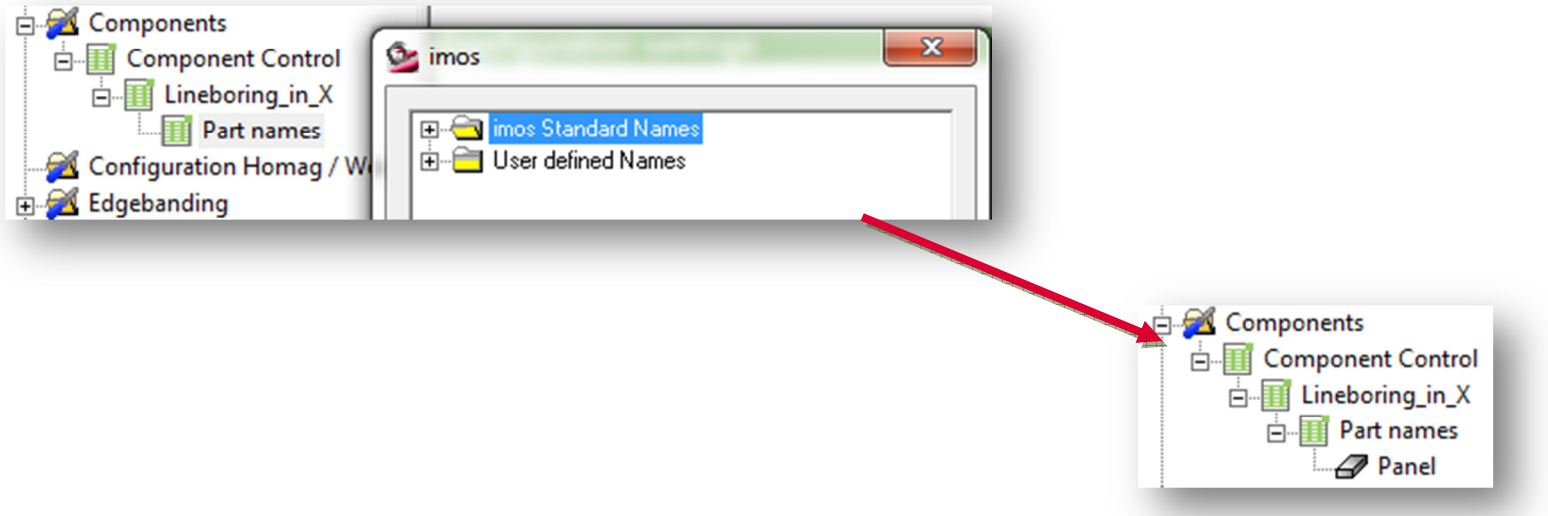
2.3 Define components on the basis of part names

In addition to the identification fields, the components can be inserted on the basis of the part names.

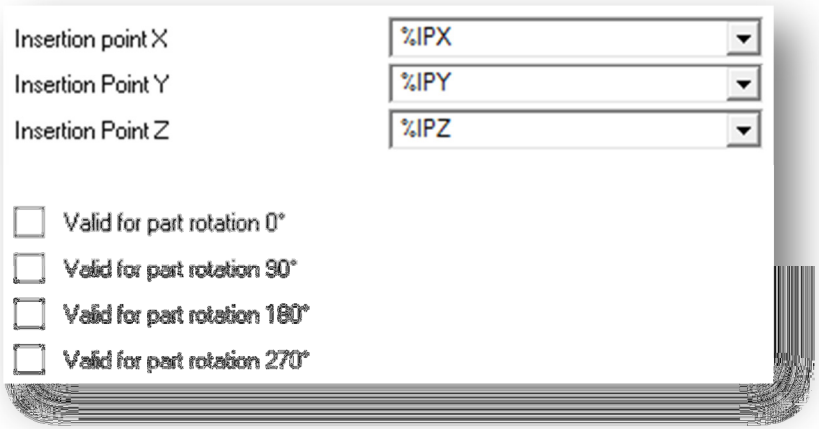


For this purpose, the field for the **part names** is under components.

If the entry **part names** is selected with a right mouse click, then **add** must be selected in the context menu. In the appearing dialog you can select from the **imos part names**.



2.4 Insertion points and validity section

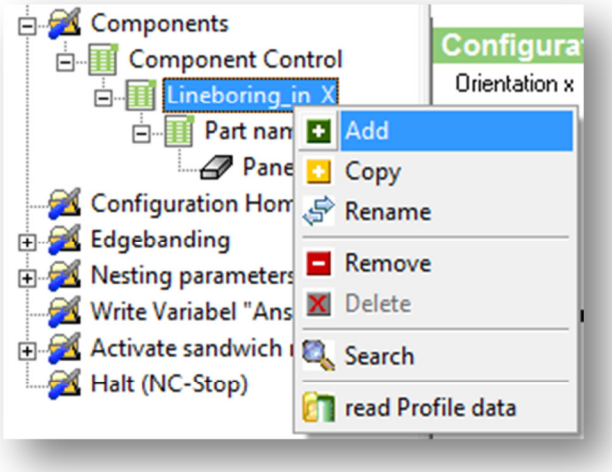


Description	Explanation
Insertion point X, Y and Z	With the insertion points in X, Y, Z you can define where the components should be inserted on the part. As **zero point** the bottom face part is always used (it would be 0,0,0 in the Wop-Program). By default when creating components the values **%IPX**, **%IPY**, **%IPZ** are entered. These are the insertion points of the machining in imos. It is important that **%** is written before the name. For example, it is also possible to write **%IPX- 200** here. Then the component is moved on the part by -200.
Valid for	If the validity for 0, 90, 180, 270 is activated, then the components are inserted with all rotations of the part. (e.g. doors must be rotated by 180° because of the edge finish so that the concealed hinge is on the stop).

3. Variables for the components

For transferring the components with a variable (e.g. width, length, depth etc.), you must clearly define them.
How the values from imos CAD get into the components is described in the following paragraphs.

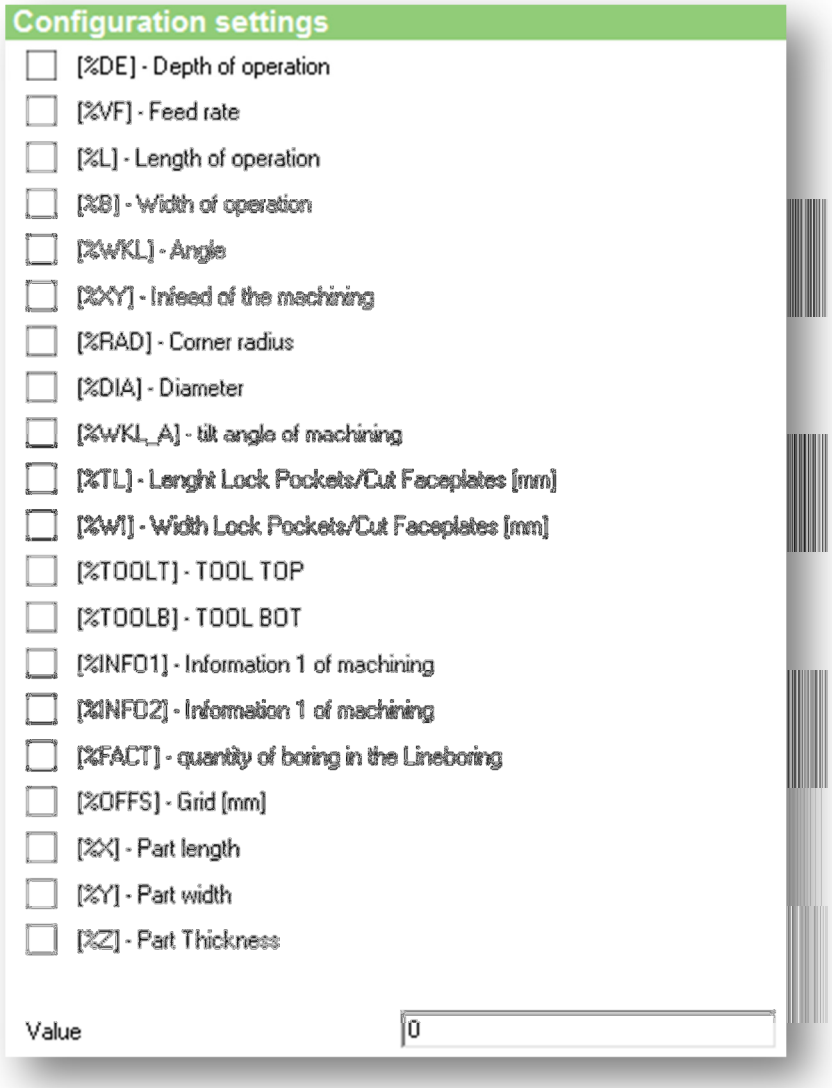
3.1 Calling a new variable



For creating a new variable, the new component name must be selected first with a right mouse click. Then in the context menu **add** has to be selected. In the appearing dialog the name, which has already been entered in the variable list of the components, must be entered.

It is very important to ensure that both names match, because this name is written in the program later.
Afterwards this name is listed in the structure tree.

A value can be transferred per variable.
By selecting the variable in the tree, the **configuration settings** are displayed on the right side:



Description	Explanation	Permitted machining
%DE	Transfers the depth of the machining from imos.	Grooves, drillings, rectangular pockets, circular pockets
%VF	Transfers the feed rate of the tool.	For all machinings
%L	Transfers the length of the machining.	Grooves, lineboring, rectangular pockets
%B	Transfers the width of the machining.	Grooves, rectangular pockets
%WKL	Transfers the angle of the machining.	Machining groups, Uni Grooves, Uni drillings
%XY	Transfers the infeed for the machining. (important for rectangular pockets, circular pockets, grooves)	Rectangular pockets, circular pockets
%RAD	Transfers the corner radius for the machining. (important for rectangular pockets, circular pockets, milled grooves)	Rectangular pockets, cut faceplates, lock pockets
%DIA	Transfers the diameter of the machining. (important for rectangular pockets, circular pockets)	Circular pockets, drillings
%WKL_A	Transfers the tilt angle of the machining.	Machining groups, Uni Grooves, Uni drillings
%TL	Transfers the length of the machining with lock pockets and cut faceplates.	Cut faceplates and lock pockets
%WI	Transfers the depth of the machining with lock pockets and cut faceplates.	Cut faceplates and lock pockets
%TOOLT	Transfers the tool name for machining from the top.	For all machinings except drillings
%TOOLB	Transfers the tool name for machining from the	For all machinings except drillings

Description	Explanation	Permitted machining
	bottom.	
%INFO1	Transfers Info 1 from the machining group to imos.	Drilling and lineboring
%INFO2	Transfers Info 2 from the machining group to imos.	Drilling and lineboring
%FACT	Number of the drillings in the lineboring.  Is only evaluated with lineboring.	Lineboring
%OFFS	Transfers the grid for lineboring (e.g. 32, 64 etc.)	Lineboring
%X	Transfers the part length in X	All machinings
%Y	Transfers the part width in Y	All machinings
%Z	Transfers the part thickness	All machinings
Freely definable value	If no listed checkboxes below are activated, then own value can be entered in the value field or a condition can be defined, for example. The entered value is written 1:1 in the component variables. The value can be calculated such as **%L-200**. Then minus 200 is written in the variable for the length of the machining.	All machinings
Startpoint in X	Transfers the start point in X to the variable.	Grooves, lineboring
Startpoint in Y	Transfers the start point in Y to the variable.	Grooves, lineboring
Endpoint in X	Transfers the endpoint in X to the variable.	Grooves, lineboring
Endpoint in Y	Transfers the endpoint in Y to the variable.	Grooves, lineboring
Insertion point in X	Transfers the insertion point in X to the variable.	All machinings

Description	Explanation	Permitted machining
	Not necessary for all manufacturers.	
Insertion point in Y	Transfers the insertion point in Y to the variable. Not necessary for all manufacturers.	All machinings
Insertion point in Z	Transfers the insertion point in Z to the variable. Not necessary for all manufacturers.	All machinings

4. Specific features for SCM



With SCM you can decide if a **component or a macro** should be controlled. If the checkbox is not activated, a component is controlled.