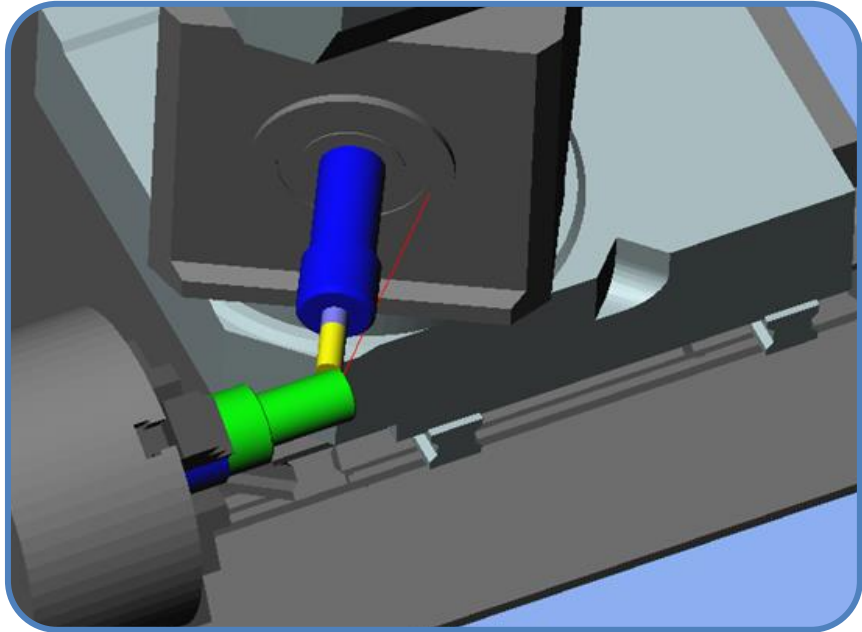


WT-ESPRIT Interface



Manual

***WinTool* Interface 2.15.12 for ESPRIT**

The WT-Esprit-Interface enables the user to select and transfer assemblies from the *WinTool* database to the Esprit CAM environment. Full graphic representation for each assembly is supported.

Requirements

- *WinTool* 2011 Professional or later
- ESPRIT 2013/2014/2015/2016/2017/2017R2

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Summary

Job

The WT-Esprit-Interface enables the user to select and transfer assemblies from the *WinTool* database to the Esprit CAM environment. Full graphic representation for each assembly is supported. The cutting conditions for the different work materials are transferred from the *WinTool* technology library to the Esprit KB. A complete list of every used tool assembly per NC-Program will be stored in the *WinTool* database for further use as setup sheet, documentation and queries.

Requirements

This Interface requires *WinTool* Professional 2011 or later and ESPRIT 2013, 2014, 2015, 2016 or 2017.

Supported Tool Types

The Interface supports most rotating and still standing ESPRIT tool types (see details in Annex). The geometry values are transferred from *WinTool* to the ESPRIT tool parameters. For rotating tools, the contour of holders and extensions is automatically calculated, transferred, and used for 3D simulation. (See manual of shape module for additional information.) The interface also transfers one STL file per assembly (rotating or lathe tool) for simulation purpose.

Licensing

You need a signed license agreement from *WinTool* AG as well as a License code matching with the number of your ESPRIT copy protection key.

Copyright

This documentation as well as the Software itself is under copyright of

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Installation

Directory Structure

WT-Esprit-Interface 2.15.5 introduces a clear separation of program files and user data. All user data is centrally placed the `[Public Documents]\WT-Esprit-Interface` folder:

User data	New location
Default location of UserModels folder. System variable <code>WTEspritUserModelsPath</code>	<code>[Public Documents]\WT-Esprit-Interface\UserModels</code>
Default location of Exchange folder. System variables <code>WTEspritExportPath</code> <code>WTMakeListPath</code>	<code>[Public Documents]\WT-Esprit-Interface\Exchange</code>
Configuration files: WT-Esprit-Interface.cfg WTEsprit.cfg WT-MakeList.cfg WT-ToolExport.cfg	<code>[Public Documents]\WT-Esprit-Interface</code>

Note: `[Public Documents]` on Windows XP is located in `C:\Documents and Settings\All Users\Documents`, on Windows Vista and later in `C:\Users\Public\Documents`

Installing/Updating the Software

Uninstall previous version of WT-Esprit-Interface before installing the new interface. Configuration files and "user tool models" will not be deleted.

Before installing the WT-Esprit-Interface, please install *WinTool Professional*.

Be sure to be local administrator to install software on a PC. To operate the Interface the Windows user needs write permission for the "exchange folder".

Run setup.exe to install the WT-Esprit-Interface software into a new folder (WT-Esprit-Interface installation folder):

`C:\Program Files\WinTool\WT-Esprit-Interface`

Note: When installing a newer version of ESPRIT in future, you will have to uninstall WT-Esprit Interface before, to omit invalid entries in the registry.

Activate ESPRIT within *WinTool* by setting the flag in Settings\CAM Settings

If you have updated from version 2.15.4 or older:

- If the interface was installed in the **same directory** as the previously installed version, the configuration files (see table above) are automatically moved to `[Public Documents]\WT-Esprit-Interface`.
- If you choose a **different directory** for the interface, you must copy the configuration files manually from the previous installation directory to the directory `[Public Documents]\WT-Esprit-Interface`
- The system variables `WTEspritExportPath`, `WTEspritUserModelsPath` and `WTMakeListPath` must be adjusted to the new defaults if the old default values have been used. See new default locations in the table above.
- The default location of the setting `UserModelPath` has changed. If you haven't set a `UserModelPath` in the interface configuration, in which case the UserModels folder is in the interface installation directory, you must move the contents of the folder to the new default location `[Public Documents]\WT-Esprit-Interface\UserModels`.

Note: Whenever you change system variables you have to restart ESPRIT to make them effective.

The Interface software is now installed with default parameters. Run ESPRIT to check, if the new buttons "Get and Put" are available.



Note:

In some cases it can happen that the WT-Esprit-Interface doesn't get properly registered with ESPRIT. If this is the case you won't see the "Get and Put" toolbar and won't be able to add it via the Tools -> AddIns Menu. In this case you have to register the file "WTEsprit.dll" inside the installation folder manually with

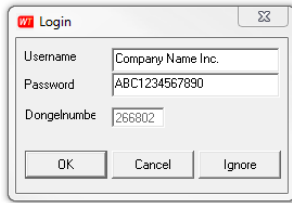
`regsvr32 WTEsprit.dll`

Administrative rights are required to register the file.

Please follow the "Licensing" instructions below to activate the interface.

Licensing

Trying the Software



For the ESPRIT demo version, you do not need a WT-Esprit-Interface license.

If you do not yet have a valid WT-Esprit Interface license, you can press "Ignore" to try the interface functionality if the login window appears.

Activating the License

You need *WinTool Professional* to use the WT-Esprit-Interface.

For ESPRIT CAM, you need a license for the WT-Esprit Interface. When using the "Get" or "Put" function, you will be asked to enter Username and License Password (see screenshot above)

Ask for your password by mail to info@wintool.com. Please declare your "Username" and your ESPRIT "dongle No".

Note: If you are updating a previous installation of the WT-Esprit-Interface, the Username and Password will be transferred automatically to the new installation.

Note: You cannot store the password if you are not logged in as administrator including the right to change values in the registry.

Using Esprit Network Dongles

Esprit Network Dongles contain separate license numbers for each Esprit Instance you are eligible to use, starting from XXXX01 to the number of licenses you purchased.

As you will get a different license number every time you start up Esprit, you have to acquire and enter the Interface password for each of those license numbers.

The password information for the Interface is stored in the registry in the path [HKEY_LOCAL_MACHINE\Software\D.P.Technology\ESPRIT\AddIns\WTEsprit.Connect](#) with a subfolder named like each of your Esprit license numbers.

Note: on 64-bit systems the registry key is stored in [HKEY_LOCAL_MACHINE\Software\Wow6432Node\D.P.Technology\ESPRIT\AddIns\WTEsprit.Connect](#)

Once you entered the password information for one of the Esprit dongle numbers you can edit the information in the registry directly to quickly add all of the passwords for the different dongle numbers by simply adding a new registry subfolder and according contents.

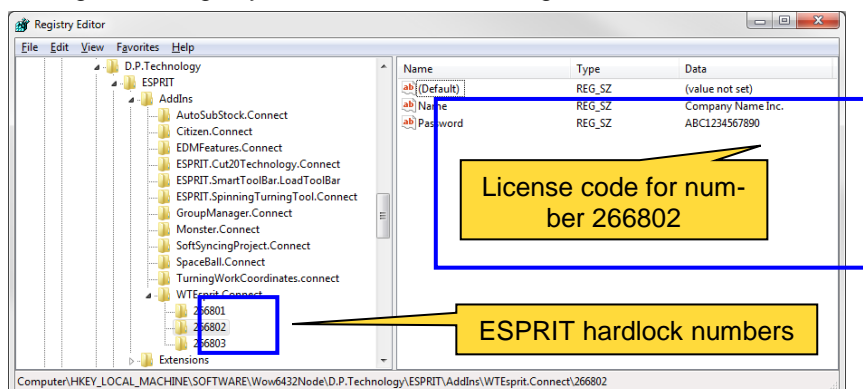


Figure 1 Instruction for Registry Editor

Once you are done editing the registry, you can export the whole contents of "WTEsprit.Connect" to import it on another system that uses the same network dongle.

Configuration

User and Password

User and password don't have to be configured anymore since version 2.15.3.

Please check the system variables and delete all entries left there from further versions or trials.

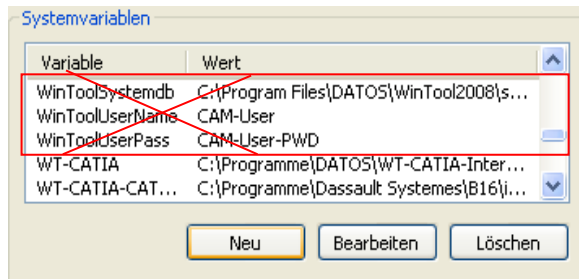


Figure 2 Check / Change Systemvariables

Interface Application Path

To enable Esprit to **start up** the WT-Esprit-Interface, the path to the interface software folder is stored in a system variable. The default is set during the installation. (See details in section: [Set Windows System Variables](#))

`WTEspritInstallPath = C:\Program Files\WinTool\WT-Esprit-Interface`

Exchange Path

The interface uses exchange files to transfer the tool assemblies into Esprit. This path is stored in a system variable where the default is set during the installation. To change this path, change the value of the windows system variable:

`WTEspritExportPath = C:\Users\Public\Documents\WT-Esprit-Interface\Exchange\`

Whenever you change system variables you have to restart ESPRIT to make them effective.

Tool List Exchange Path

The list of Tools used in an Esprit program is saved in a TLS file which is used by the **WT-MakeList** module to transfer the list in the *WinTool* library. This path is stored in a system variable where the default is set during the installation. To change this path, change the value of the windows system variable:

`WTMakeListPath = C:\Users\Public\Documents\WT-Esprit-Interface\Exchange\`

Whenever you change system variables you have to restart ESPRIT to make them effective.

Note: Use a different WTMakeListPath for each user.

Solid Models Path

The DXF Files, STL **Solids** and ETL custom tool files are stored in a common folder to be used within Esprit for simulation. This path is stored in a system variable where the default is set during the installation. To change this path, change the parameter in the file

`[Public Documents]WT-Esprit-Interface\WT-Esprit-Interface.cfg` and the system variable "WTEspritUserModelsPath".

`WTEspritUserModelsPath = X:\Global\WT-Esprit-Interface\UserModels`

Whenever you change system variables you have to restart ESPRIT to make them effective.

Note: Use a common path for all users. Be sure the selected folder is included in the periodical backup procedure.

Getting Started

Sample Database

With the *WinTool* software installation a sample database (WTData.mdb) is installed. An extended database is provided with the WT-Esprit-Interface, which contains ready to use tool assemblies with SK40 holders for testing.

Note: Only tools in the tool list " 100 1050 - 20 C_Tools" have cutting conditions assigned.

The WT-Esprit-Interface always works with the database that is hooked up with the local *WinTool* installation. Re-link your *WinTool* installation to the sample database with the function "Change" in "Configuration" on the main *WinTool* screen.

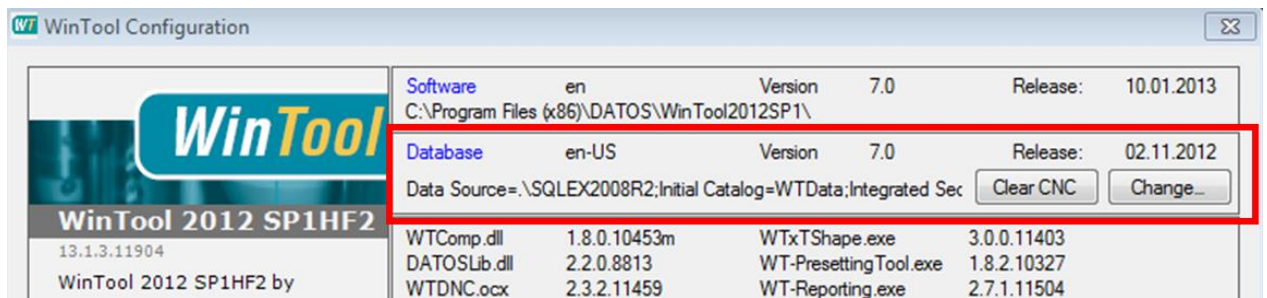


Figure 3 WinTool Configuration - Change Database

Note: If you installed *WinTool* with an SQL Database, please use the "WinTool Database Manager" to switch the active database. You find the DB Manager in a subfolder of your *WinTool* installation path.

Importing Milling Tool Assemblies

In ESPRIT CAM open the sample "Side-Frame" located in the WT-Esprit-Interface sample folder.

Use the "Get" button to open the Tool Selection Menu (WT-ToolExport) and choose the "Tool Assembly" button to select a single tool assembly

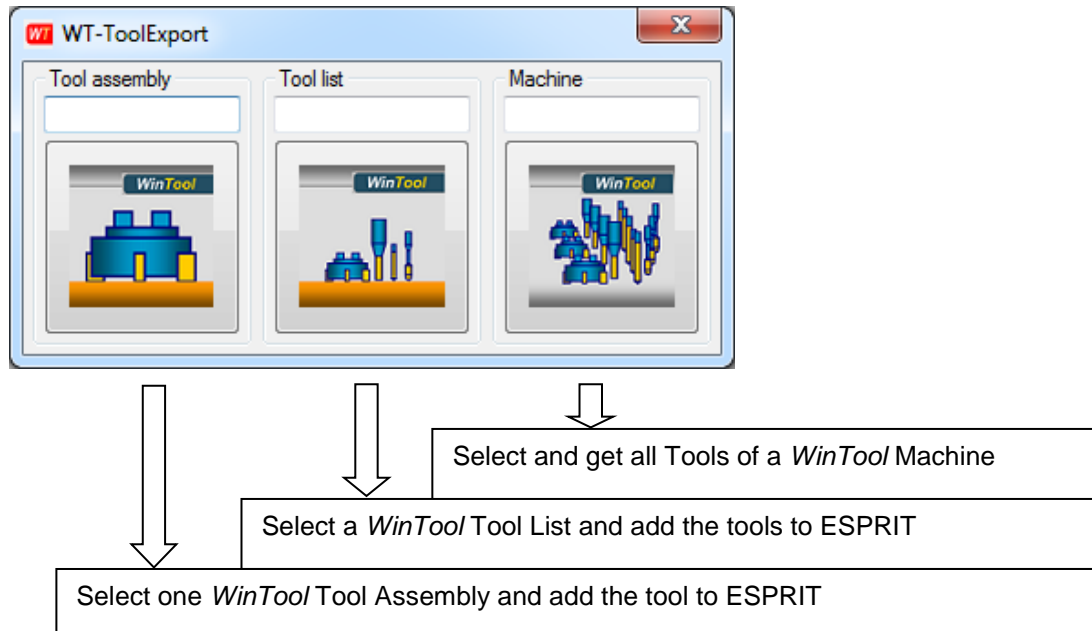



Figure 4 Instruction WT-ToolExport menu

Use the button  to select the tool Class "221 face mill". For this first run through in this manual, please select the tool with the ID 616093 and click OK.

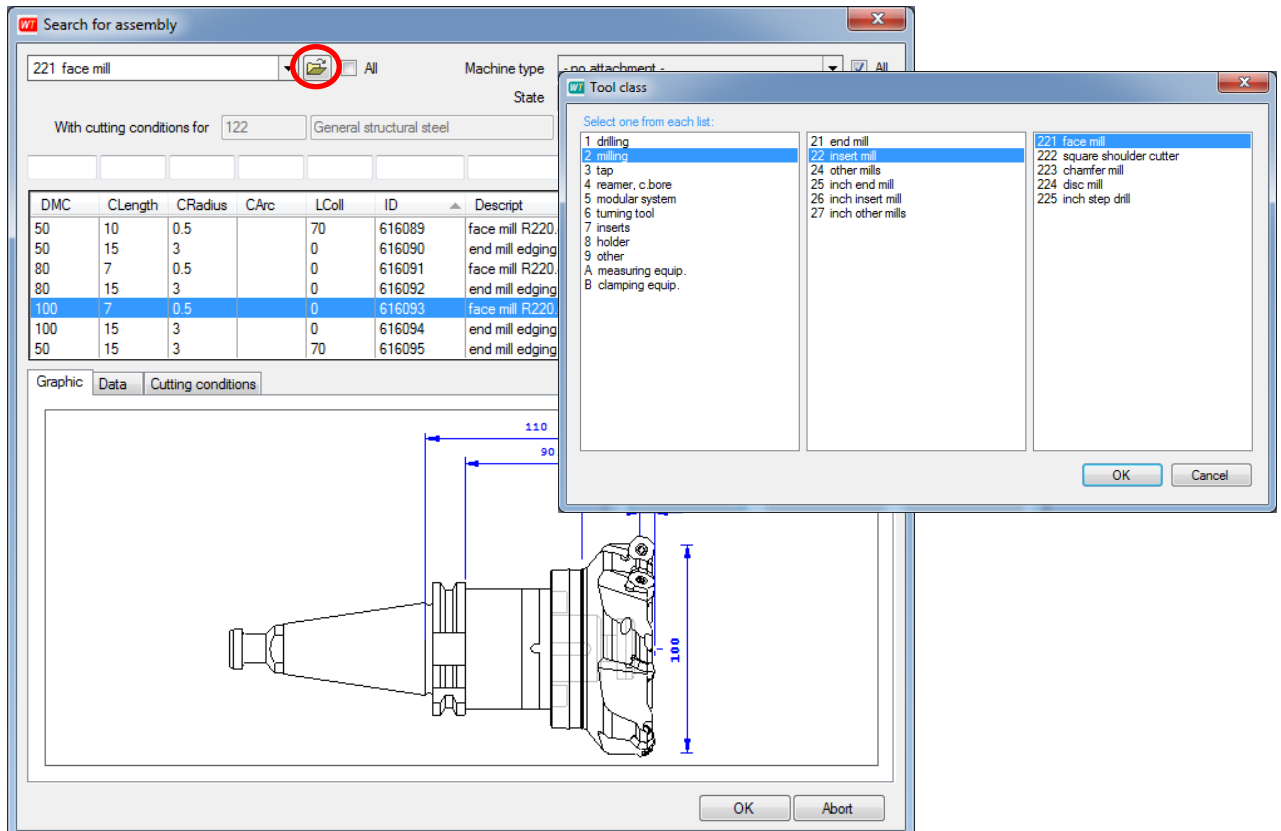
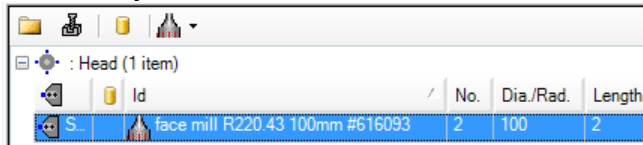


Figure 5 Search a class from the assemblies

Immediately the tool data will be transferred and is available in ESPRIT:



Select in "ESPRIT KnowledgeBase Document Settings" the "WinTool Cutting Conditions" as standard.

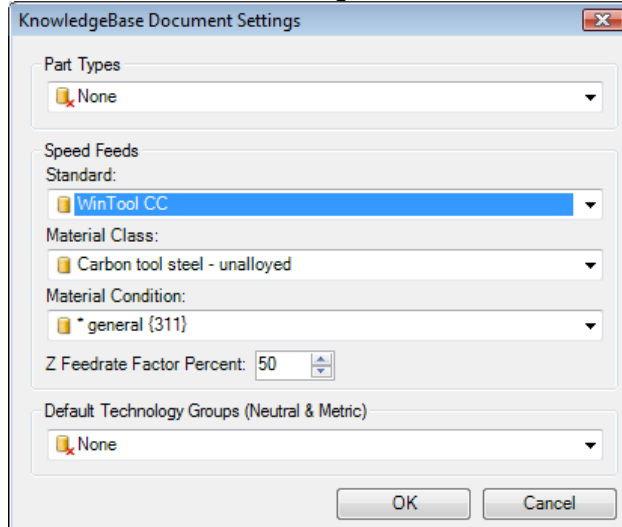


Figure 6 Change the Speed Feeds for Standard

Note: Work materials and cutting conditions are transferred from *WinTool* to the ESPRIT KB with the tool assembly (...if they have been previously stored in *WinTool*).

Create a Facing Operation for the open sample work piece and select the face mill we just transferred from *WinTool*. To get the transferred cutting condition for the selected material, select "Any" in "Type of Cut".

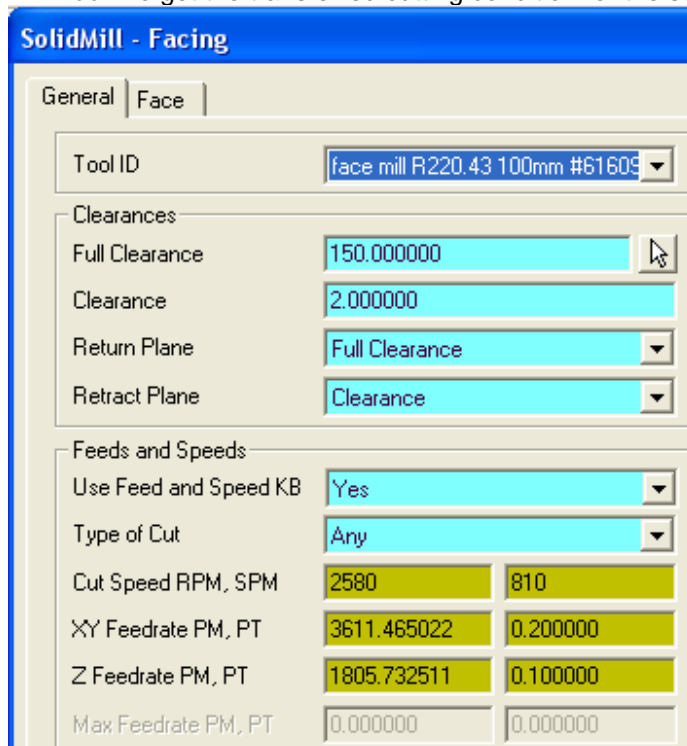


Figure 7 Create a Facing Operation

Run the simulation to see the WinTool tool representation.

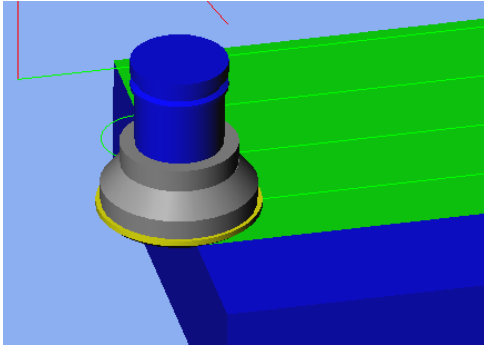


Figure 8 WT-Esprit Simulation

Use the "Get" function again to transfer the Tool List " 100 1050 - 20 C_Tools" from *WinTool* to ESPRIT and you will get a set of total seven tools in ESPRIT.

Tool ID	Style
face mill R220.43 100mm #616093	Milling Tools - Face Mill
tap M08 #616001	Milling Tools - Tap
twist drill HSS 6.8mm #616004	Milling Tools - Drill
end mill HSS 32mm #616017	Milling Tools - End Mill
end mill HSS 20mm long #616031	Milling Tools - End Mill
twist drill HSS 8mm #616077	Milling Tools - Drill
boring bar 10 mm #616134	Milling Tools - Boring Bar

Figure 9 Tool list with ID and Style

Note: Only tools in the tool list "100 150 06 M" have cutting conditions assigned. Continue to use the transferred tools to create a NC-Program.

Save the Tool List to *WinTool*

When the NC-Program is created, the list of tools used in the program must be saved in *WinTool* to make it available for planning and tool crib.

Use the "Put" button to save the tool list as exchange file. The WT-MakeList software automatically reads this exchange file and creates in *WinTool* a new tool list or updates an already existing tool list in the *WinTool* database.

Give the List a new name and fill in the other fields as you wish. The information will be stored to the *WinTool* database.

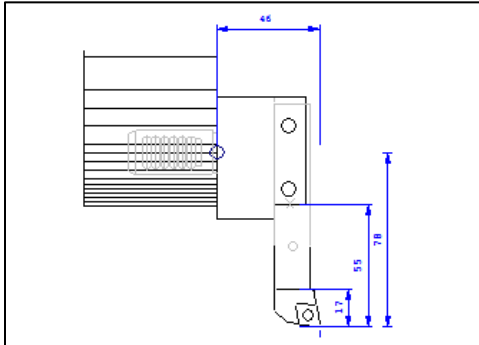
Figure 10 WT-MakeList Fill in empty fields

Note: You can configure default values for these data fields. For more information see [WTEsprit.cfg](#) in the Annex of this manual.

Note: The sequence of the assemblies in the tool list is the same as in the ESPRIT tab "Tools". You can change to "order of usage" in configuration file.

Importing Turning Tool Assemblies

In ESPRIT CAM open the sample "Club-Shot" in the WT-Esprit-Interface sample folder. Click on the "Get" button to open the Tool Selection menu and use the "Tool Assembly" button to find and pick the turning tool 636106.



Place the tool at Station 1

: 1 - IndexierbarRevolver-1 (6 items)				
	Id	No.	Dia./R	Length
Station:1	turning tool SCLCR 1616 H09 #6361...	1	0.8	1
Station:2		0	0	0

Figure 11 Turning tool graphic and control

Create a manual turning operation with this tool and run the simulation.

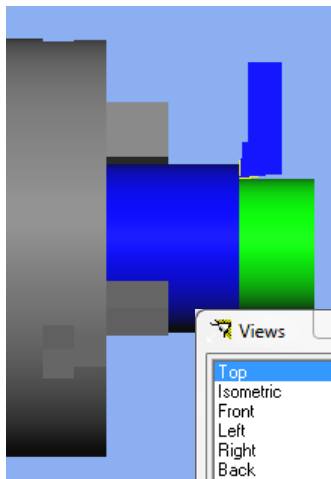


Figure 12 Simulation run - Top

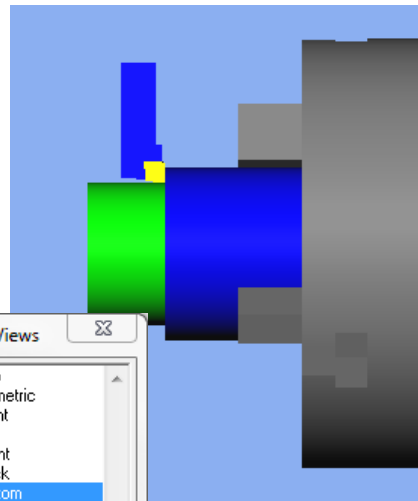
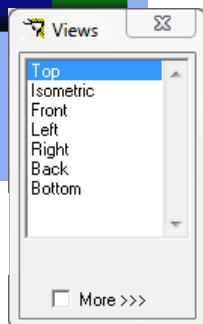
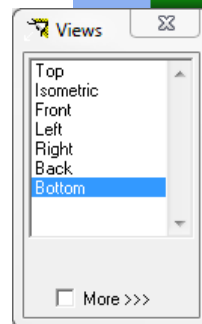


Figure 13 Simulation run - Bottom



Note: Use "Bottom" view to show the tool similar to the view in *WinTool*.

Note: The tool position (Tool Shift X and Z) is set according to the configuration of machine setup (see [Configuring the ESPRIT Machine Setup](#)).

Note: Use a STL file if a full representation of the holder is required. The file must be stored to the "UserModels" folder and its name must be the same as the ToolID. Lots of turning tools and some special drills from the *WinTool* sample database (e.g. Tools #636101 - #636120) are supplied with the installation.

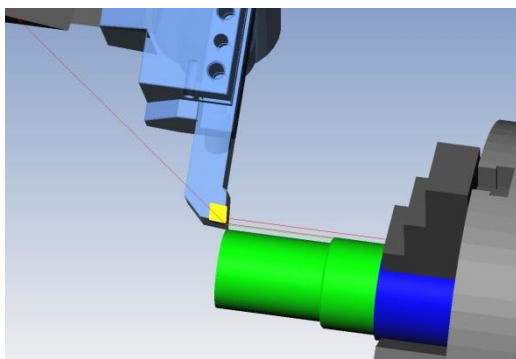


Figure 14 Example turning tool simulation

Set Up Your Tool Database

Before you start to set up a database with your tool data, please read the following chapter carefully to fully understand the principals of the interface mechanism and to ensure, you will record your data correctly.

User Classification

For each *WinTool* User-Classification you need to assign the corresponding Esprit tool type. In the main *WinTool* menu select "Setting", "Classes" and select a class. Assign in the data field "note" the corresponding Esprit tool type, for example [/ES01](#)

To find the ESPRIT tool types see in the Annex or see examples in the supplied sample database.

Machine Configuration

Before you create your own tool assemblies, you have to record and configure the "machine types" in *WinTool*. Prepare a *WinTool* machine type for each machine adapter (CAT40, VDI-25 etc.) you have (and not for each physical machine tool you own).

Work Materials

WinTool offers a database with over 1000 work materials structured in 100 different material classes. Additional work materials can be added by the user.

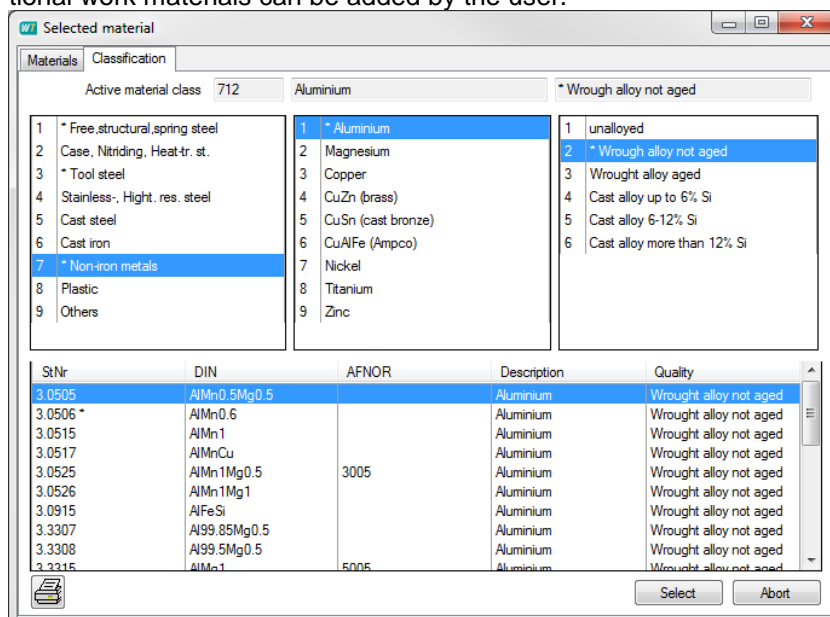


Figure 15 Classification from selected material

The *WinTool* Work material classes are being transferred to the Esprit KB during data exchange with the WT-Esprit-Interface.

Note: Find the work materials you are using and take a note of the "material classification". While working with the interface later on, the note will easily let you select your work materials during tool import to ESPRIT.

Technology Library

For each tool assembly multiple cutting values for different work materials and machining situations can be stored in a table. If cutting data is stored for a work material and you are using that material in your Esprit project, the corresponding values will be transferred by the *WinTool* interface automatically to the Esprit KB.

If multiple cutting values are stored for one work material, all the data will be transferred.

DMC	StNr	ap	ae	Dia	z	Vc	fz	S	F	Type	Coolant Type	P	T	Comments
122	1.0570 *	1.25	0	8	1	17	1.25	676	845	Standard	2 On	0	0	
311	1.1545 *	1.25	0	8	1	11	1.25	438	548	Standard	2 On	0	0	
712	3.0506 *	1.25	0	8	1	54	1.25	2149	2686	Standard	2 On	0	0	

Figure 16 Multiple values stored in table

Standard Assembly (Tool Data Entry)

WinTool considers "Standard Assemblies" those tools which are fully supported by the WT-ESPRIT-Interface and can be automatically generated with the Shape Module. Please refer to the manual of the Shape Module to review its capabilities in creating a contour for rotational-symmetric 3D models.

Be sure to enter the tool geometry as described in the *WinTool* help section in chapter 4.1.9 "Where to measure the geometry". Only if you enter the component data according these instructions, the assembly can be transferred to ESPRIT correctly.

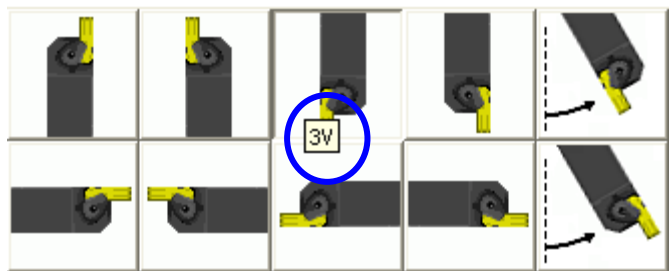
Only tool assemblies will be transferred to ESPRIT that have

1. a classification ("class") assigned
2. contain a "namegiving component" (set flag in appropriate component)
3. are linked to a *WinTool* "machine type"

Mounting orientation

Within ESPRIT the mounting orientation is selected in the general tab of each tool.

For each assembly you can set a mounting orientation number in the *WinTool* custom field C6. It overrides the default calculated by the interface.



C1		* Mounting Orient.	3V	C11	
C2		* Spindle Dir.	L	C12	
C3			C8	C13	
C4			C9	C14	
C5		* Coolant	7	C15	

Figure 17 Enter a Mounting Orient parameter

Note: The value of this field is not imported into the ESPRIT custom setting 6. The interface uses this setting to store a "root" mounting orientation which is used together with the tools mounting orientation to calculate the position of the tool in the ESPRIT simulation.

Coolant Type

Within WinTool the Coolant Type is selected in the general tab of each tool. The default value can be preset for each assembly in the "Geometry" tab:

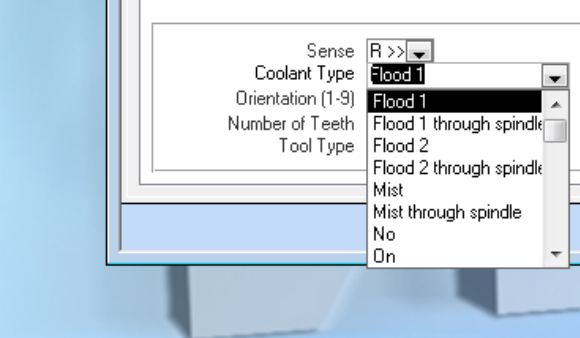


Figure 18 Select a Coolant Type

If the coolant type is not set, the former method by using the custom field C10 is used:

C1		* Mounting Orient.	3V	C11	
C2		* Spindle Dir.	L	C12	
C3			C8	C13	
C4			C9	C14	
C5		* Coolant	7	C15	

Figure 19 Set a Coolant number from list

- 0=Off
- 1=On
- 2=Mist
- 3=Flood
- 4=Flood2
- 5=Through-On
- 6=Through-Mist
- 7=Through-Flood
- 8=Through-Flood2

Spindle direction

Rotation Tools

The WinTool field "Sense" in the assembly record is used as default. This is usually suitable for rotation tools.

Sense <<<< L

Lathe tools

For lathe tools the default spindle direction is set in the WinTool field C7. Use "R", "N" or, L

C1		* Mounting Orient.	3V	C11	
C2		* Spindle Dir.	L	C12	
C3			C8	C13	
C4			C9	C14	
C5		* Coolant	7	C15	

R=CW
N=None
L=CCW

Figure 20 Set a letter for the spindle direction

Type of cut

Within *WinTool* the type of cut can be selected in the Technology Module for each cut data entry. The default value for old cut data entries created prior to *WinTool* 2010 will be "Standard".

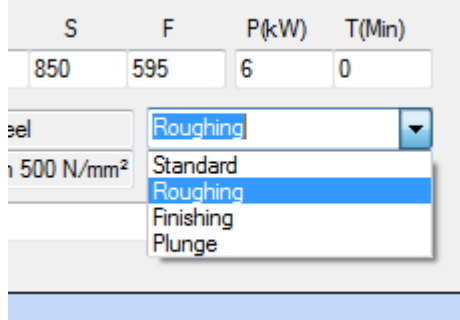


Figure 21 Select a type of cut

Settings in Tool Lists for Turning Tools

Turret

The "Put" function transfers the Turret ID where the Assemblies are placed to the Tool List. When reloading a tool list with the "Get" function, the turret ID stored within the tool list is transferred to the project.

Station ID

The "Put" function transfers the Station ID where the Assemblies are placed to the Tool List. When reloading a tool list with the "Get" function, the Station ID stored within the tool list is transferred to the project.

Mounting orientation

The "Put" function transfers the Mounting Orientation of the Assemblies to the Tool List. When reloading a tool list with the "Get" function, the Mounting Orientation stored within the tool list is transferred to the project.

The following values are used within the Tool List to store the orientation:

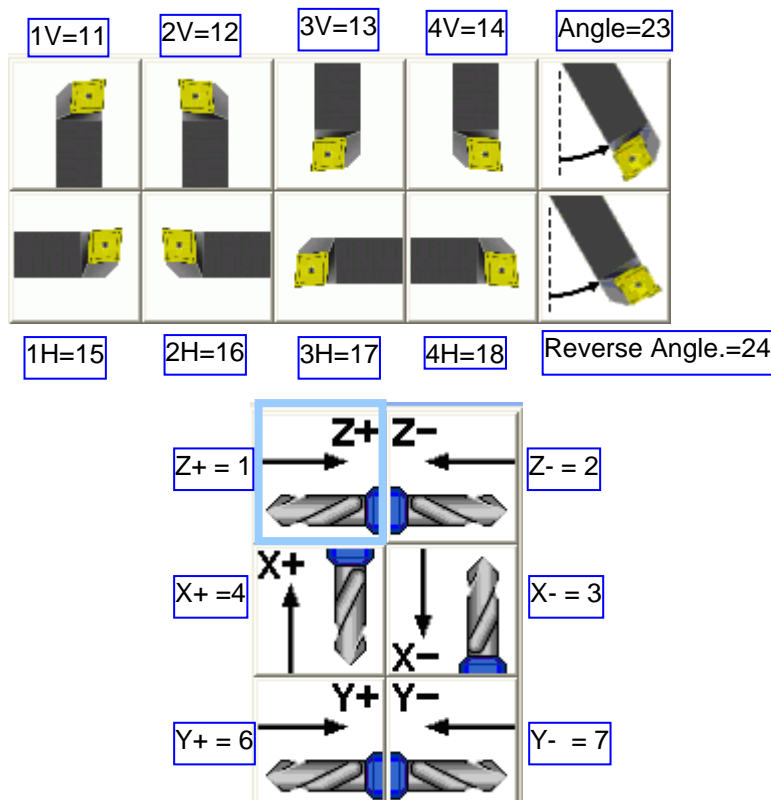


Figure 22 Mounting orientation depends on value

Esprit Custom Setting

By default, the Values (numerical) stored in *WinTool* data fields C1-C5 and C7-C10 are transferred to the custom setting fields of the ESPRIT Assembly. The numbers of the *WinTool* data fields correspond to the ESPRIT data fields.

If you are using post processors which use the ESPRIT custom settings, you can control the fields that are transferred by the interface by configuring the setting `ImportCustomSettings` in the file [WTEsprit.cfg](#). Add the C numbers that should be imported and separate them with a comma, e.g. `1,3,4,8`.

Examples:

To transfer no custom settings leave it empty:

```
ImportCustomSettings =
```

To transfer setting C1 and C3:

```
ImportCustomSettings = 1,3
```

To transfer all, add a `#` at the beginning:

```
#ImportCustomSettings =
```

Note: The interface uses custom setting 6 to transfer a "root" mounting orientation which is used together with the tools mounting orientation to calculate the position of the tool in the ESPRIT simulation. If you disable the transfer into ESPRIT, the value is stored invisibly in the project.

Mapping of Custom Settings Import

The import of the *WinTool* tool assembly data fields **C1-C5**, **C8**, **C9** and **C11-C15** to the custom setting fields of the ESPRIT assembly can be customized by the settings `CustomSetting1` - `CustomSetting10` in the file [WTEsprit.cfg](#)

Example:

To import the value in *WinTool* data field C11 in the ESPRIT custom setting 1, set this:

```
CustomSetting1 = 11
```

Import Tool Shape from DXF for Lathe Machining

By default the cutting tool shapes of drilling and milling tools used in lathe machining projects are not imported and not visible in the simulation. This can be changed by the setting `enableShapeInLatheMachiningMode` in the file [WTEsprit.cfg](#).

To enable the cutting tool shape import, add this line:

```
enableShapeInLatheMachiningMode = true
```

Note: After activating this setting, the tool must be imported again to show the tool shape in the simulation.

Custom Specific Assemblies (general)

Custom specific assemblies can be stored in the configured UserModels folder. They have to have the same name as the tool assembly's ID number in *WinTool*. The Interface will process custom specific files in the following order and will then ignore the others for that assembly:

- ETL files
- STL files
- DXF files

If none of the above is found the Interface the assembly will be represented according to its geometry data.

Custom Specific Assembly with Contour-DXF

A non-standard or a "custom specific tool" is an assembly that can't be created fully automatically because of limitations of the Shape Module.

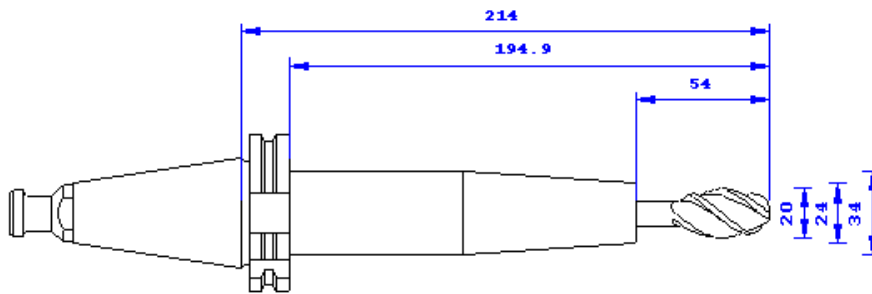


Figure 23 Tool Contour with dimensions

For custom specific assemblies you can create the DXF file manually.

Note: The WT-ESPRIT-Interface stores contour-DXF files in the folder [WTEspritUserModelsPath](#). Even if a tool is not supported fully by the Shape Module, the Shape will create in most cases a contour-DXF, although not with all additional details of the custom specific tool ... but with a lot of useful elements in place already: holder, extensions, reductions, shank, total length, correct layers, etc. The DXF file can be easily modified and completed as a "custom specific contour-DXF" manually.

Record a custom specific tool assembly in *WinTool* as follows:

Create a custom specific assembly with the advanced functions "search matching" and "adjustment length/width" in *WinTool*.

Use Tool Assembly Export to generate a contour-DXF and modify the tool geometry as described above or create the contour-DXF manually assigning correct layers.

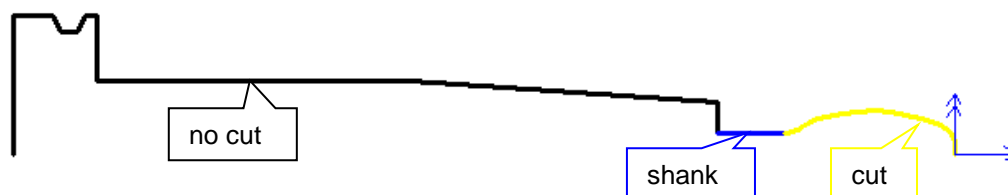
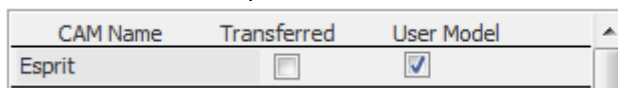


Figure 24 Tool Contour DXF

Use the *WinTool* tool assemblies ID # as filename (i.e. "615015.dxf"). Store the file at the configured [WTEspritUserModelsPath](#).

Assign the new custom contour-DXF to the *WinTool* tool assembly: Check the box "User Model" in the tab "CAM" in the row "Esprit".



If the row "Esprit" is missing, please activate ESPRIT in Settings \ CAM Settings on the main *WinTool* screen.

Note: The contour must not have any gaps. Endpoints will be linked to the rotation axes and multiple simulation profiles will result. Only one of them will be recognized by the simulation.

Custom Specific Assemblies with STL

A custom specific STL can be used if the standard 3D representation in ESPRIT is not sufficient.

Preparing the STL

Create the assembly in *WinTool*.

Create 3D Models for the components (use Item No. as file name and link the file to the *WinTool* component).

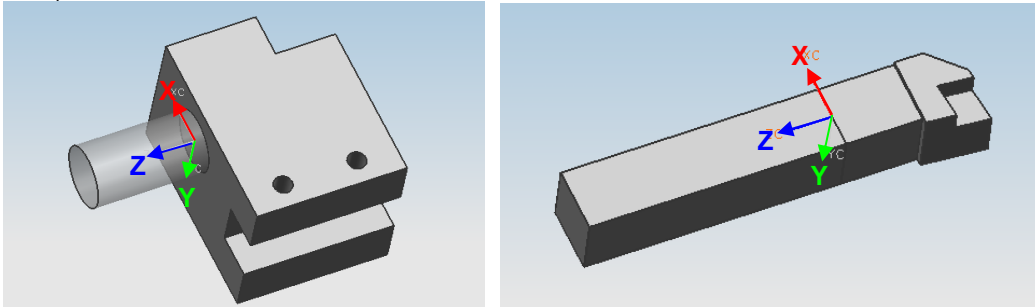


Figure 25 3D models with axes

Combine the component's models to a 3D Assembly. Do not include the insert in the STL because will be created directly out of the *WinTool* tool component data.

Store the model as STL in the configured [WTEspritUserModelsPath](#) path. Use the "Ident No" of the assembly as file name.

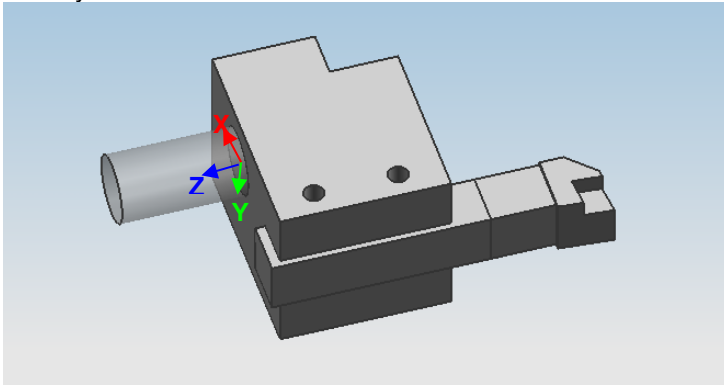


Figure 26 3D Model assembly tool

Note: You can export the *WinTool* 2D tool assembly as DXF drawing as a starting point to quickly create an STL in ESPRIT. Or ask your tool supplier for STL files or create them with any 3D CAD software.

Note: You do not need to assign the STL file to the assembly to force its use. Whenever an STL with proper naming is available in the configured folder [WTEspritUserModelsPath](#) folder it will be automatically loaded.

Add the link to this STL-file in *WinTool* assembly tab "AD" so you can access it quickly (just click on it) using a viewer. This is not a requirement but it helps to manage 3D models.

Configuring the ESPRIT Machine Setup

Set the appropriate values for the tool stations of your machine:

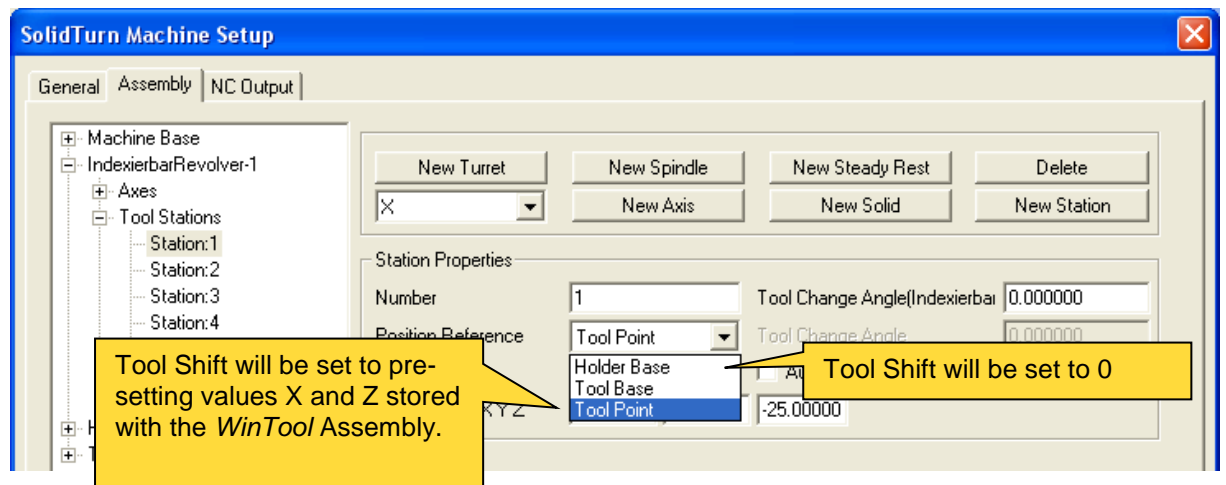


Figure 27 Instruction SolidTurn Machine Setup

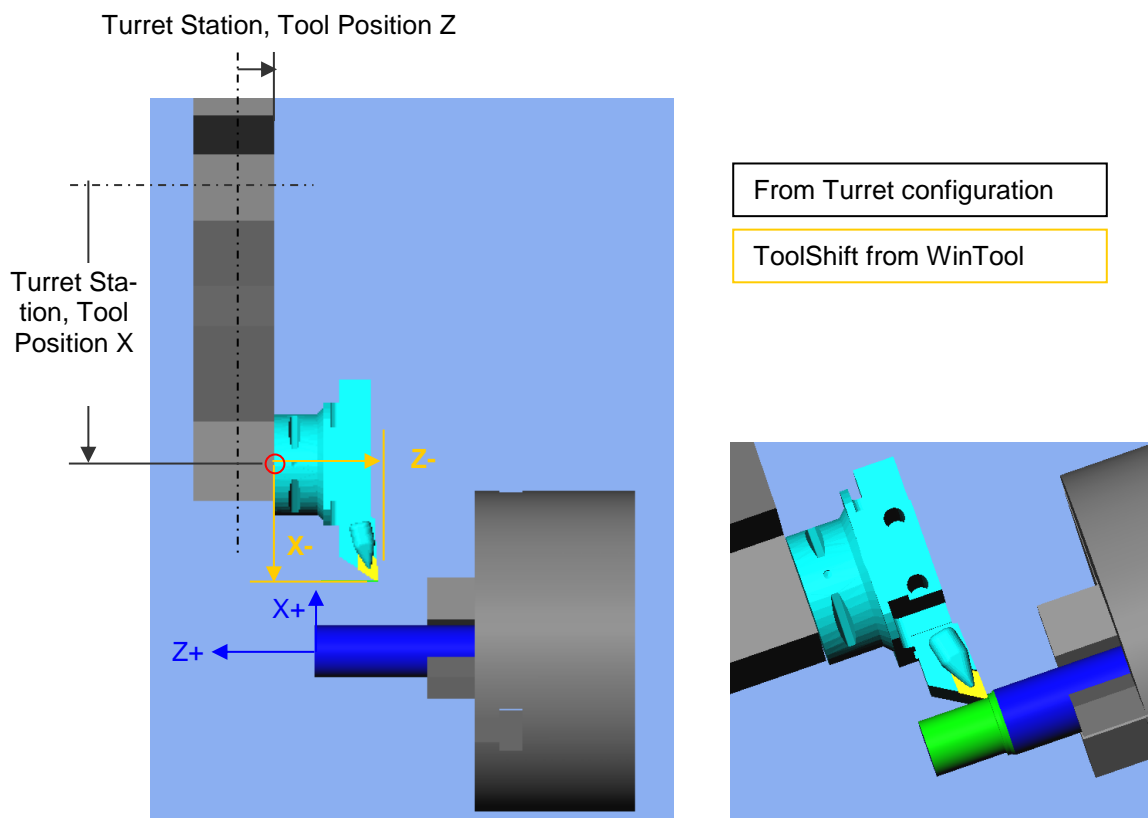


Figure 28 3D Simulation

Custom Specific Assemblies with ETL

A custom specific ETL can be used if the standard 3D representation in ESPRIT is not sufficient.

Preparing the ETL

- Create the assembly in *WinTool*
- Assign the assembly to a ESPRIT interface tool class
- Import the tool into Esprit
- Modify the tool according to your needs
- Save the tool to your user models folder and name it like the assembly's ID in *WinTool* as you would with a STL file (but with .etl extension)
- Assign the assembly to a tool class configured either as /ES14 (Custom Mill) or /ES15 (Custom Turning Tool)
- Import the tool into Esprit

Usage of ETL files

If the Interface finds an ETL file in the configured UserModels folder on tool import, it will automatically import the ETL file instead of the *WinTool* geometry data and graphics.

If a STL file exists, it will also be imported.

Axes orientation

STL Files

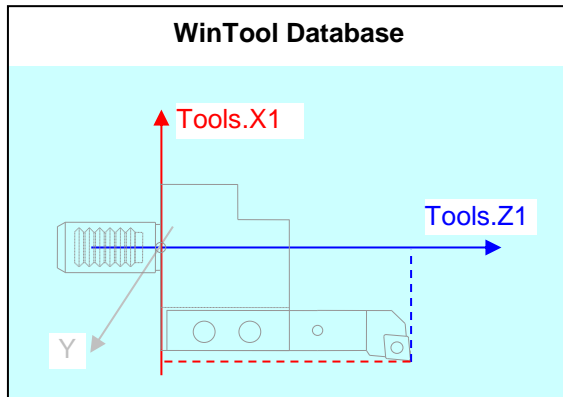


Figure 30 2D Axes orientation

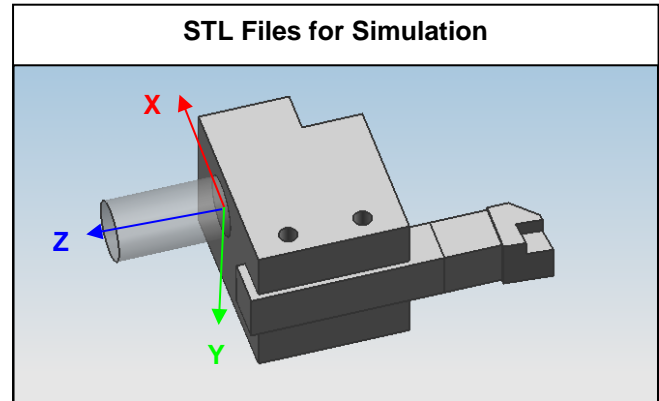


Figure 29 3D Axes orientation

ESPRIT mounting orientation

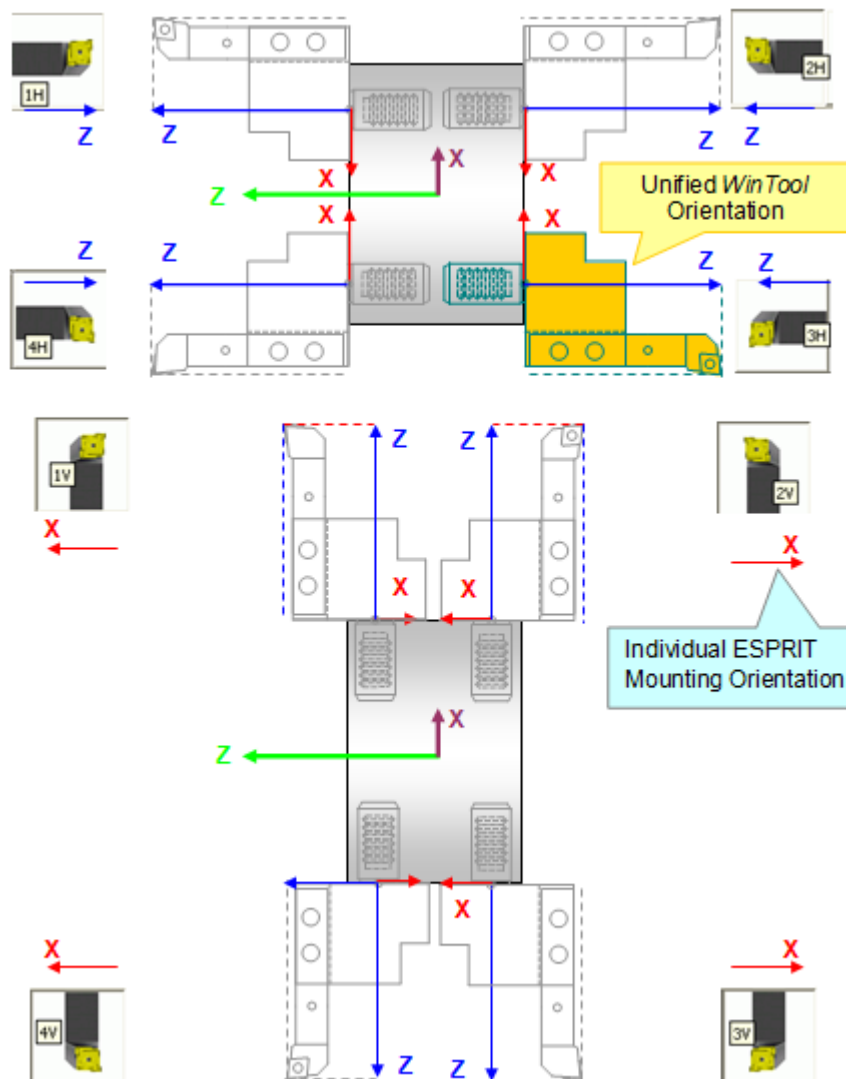


Figure 31 ESPRIT mounting orientation

Transferred Flag for Assemblies

The "transferred Flag" is a checkbox in the folder "Geometry" in the row "Esprit" of each tool assembly.

CAM name	Transferred	User Model
Esprit	<input type="checkbox"/>	<input type="checkbox"/>

The "transferred flag" helps to speed up the interface. If the transferred flag is set, no shape contour will be created during transfer. It is assumed then, that the shape (DXF) is already available in ESPRIT from a previous transfer.

Whenever a tool is exported, the flag "transferred" will be automatically set for the assembly. The flag will be automatically erased whenever the WinTool picture of the assembly is changed (rebuild). The flag can also be erased manually.

Since the Shape Generator is very fast, hardly any time is lost to create the same contour-DXF again and again. Therefore, the functionality is **switched off** in the WT-Esprit-Interface.cfg file by default but can be switched on if required. Do not use it before problem free operation of the interface is accomplished.

ToolShift Z for rotating Tools

For unknown reason, ESPRIT mounts the tool holder with a Z-displacement to the spindle nose. This Z-Displacement depends of the configured Tool Holder size in the ESPRIT machines settings.

Tool Holder	Number 30	Position Reference	Holder Base
-------------	-----------	--------------------	-------------

WinTool does automatically add the appropriate value in the Tool Shift Z-register to adjust the displacement.

It is important, that the Post Processor does not add the Tool Shift to the NC-Program coordinates calculated. The following parameters must be set in the PP Machine mode:

```

XEXCLUDEGAGELNGTH : 1
ZEXCLUDEGAGELNGTH : 1

```

Tool Shift Z Adjustment

Size **30** 63.950
 Size **40** 84.125
 Size **45** 98.425
 Size **50** 117.500
 Size **60** 177.800

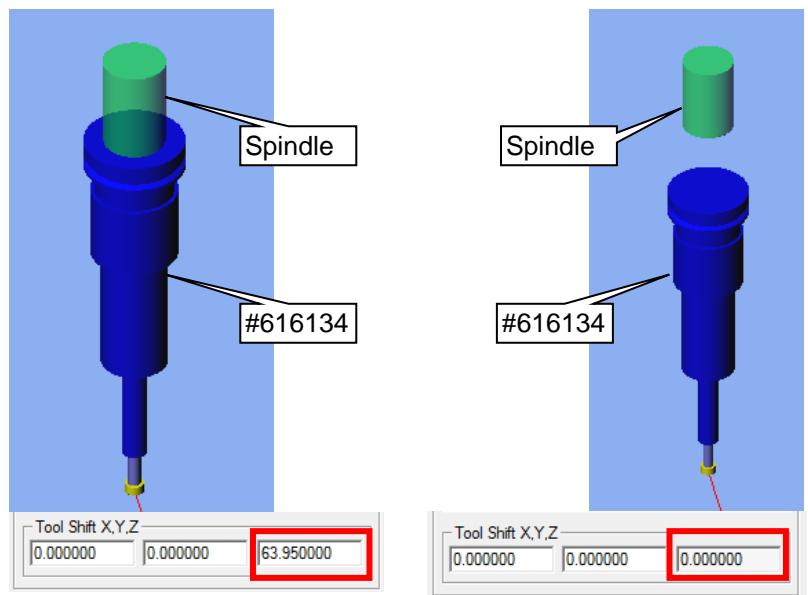


Figure 32 3D Simulation Tool Shift adjustment

Note: This functionality can also be switched off. For more information see [WTEsprit.cfg](#) in the Annex of this manual.

Feed and Speed in KB

Cutting conditions stored with the Assembly and linked to a work material.

In this case, the cutting conditions are for two different depths of holes but for one and the same work material.

Work material must be selected in ESPRIT

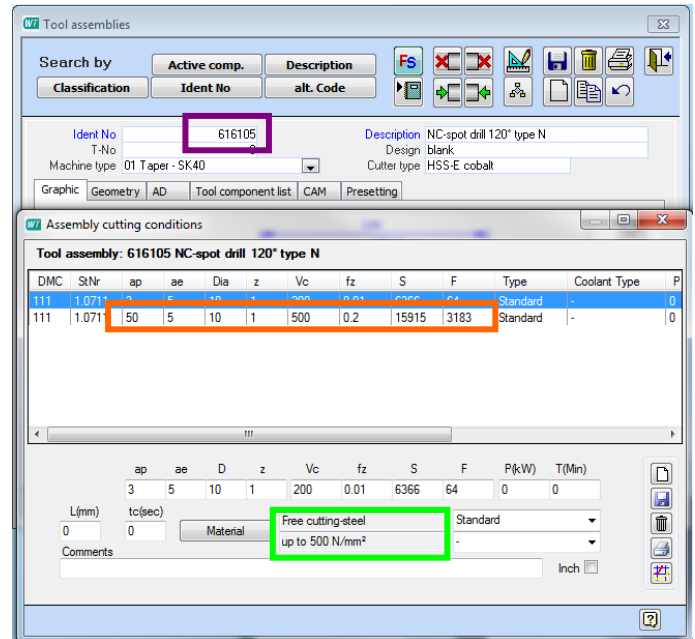
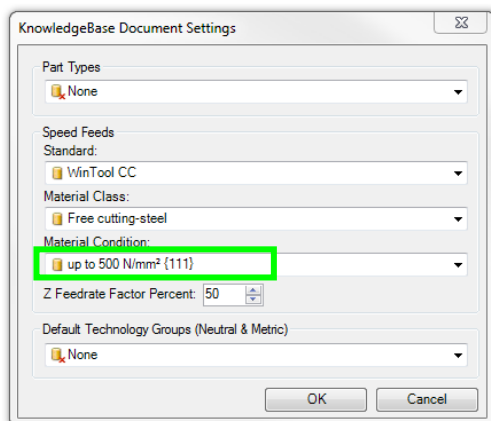
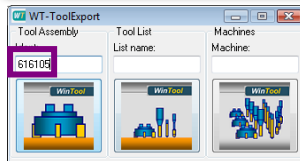


Figure 33 Select work material and assume the settings



The assembly and the cutting conditions for the selected material are transferred to ESPRIT

The KB uses the transferred cutting conditions to calculate best values for the operation.

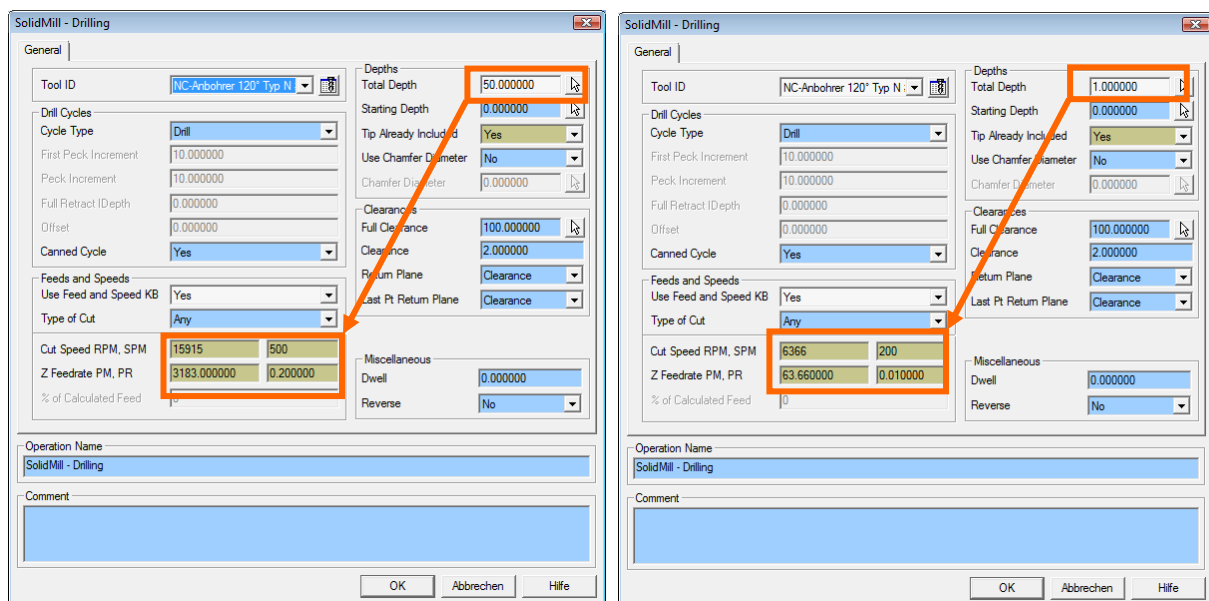


Figure 34 SolidMill-Drilling General adjustment

Software Structure

Software-Modules and Data-Exchange

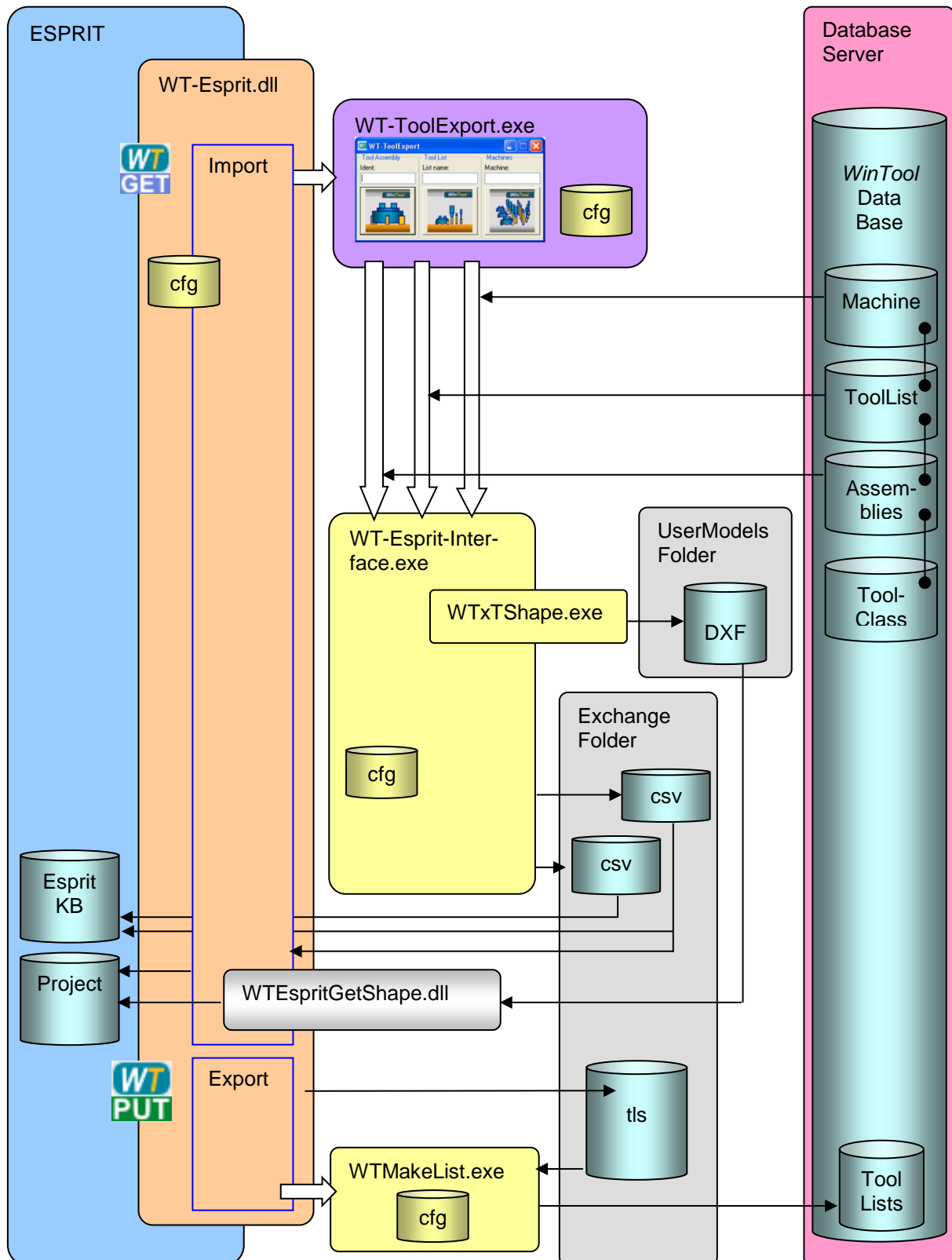


Figure 35 Composition Software Structure

WinTool-ESPRIT Data Integration

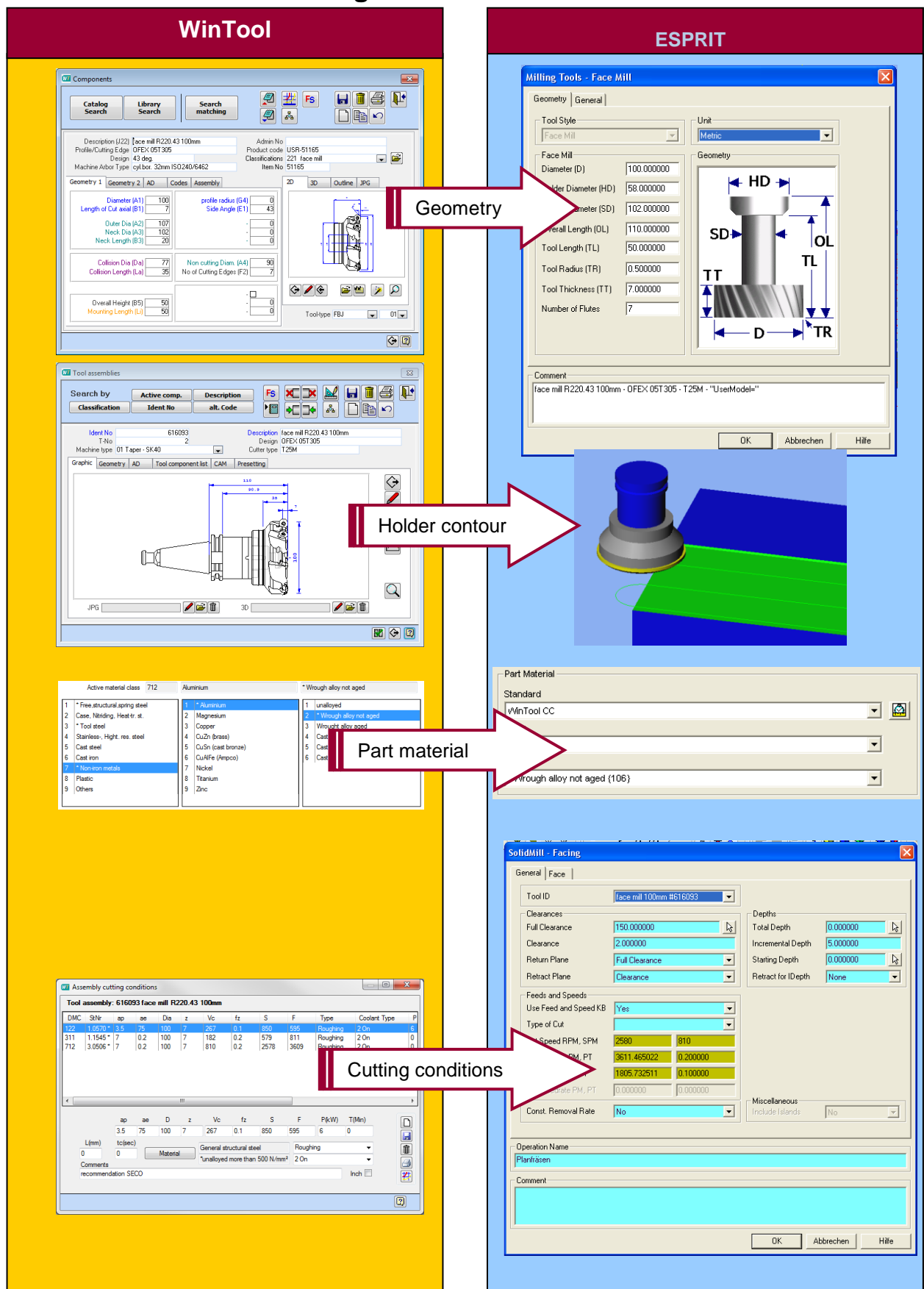


Figure 36 Integrate WinTool in ESPRIT

Set Windows System Variables

Use advanced system control of Windows to set the "environment variable" to set the system variables:

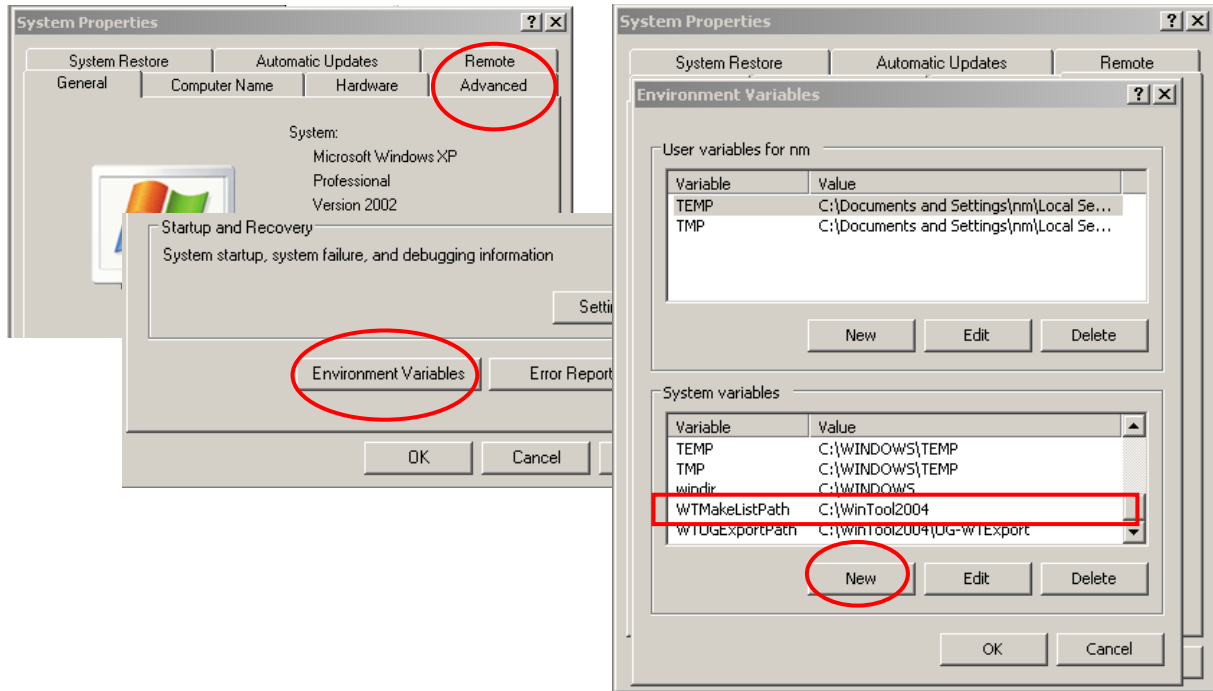


Figure 37 Set System Variables in Windows ESPRIT

Configuration File Parameters

General Information

Configurable parameters have their default as long as they are not set differently in the cfg file. The cfg file can be edited with any text editor. Lines starting with a “#” sign are comment lines and will be ignored. Some parameters have their default as system variable. These defaults will be overwritten by those values configured in the cfg file as soon as the software is launched.

WT-Esprit-Interface.cfg

WT-Esprit-Interface.cfg is located in the folder `[Public Documents]\WT-Esprit-Interface`

```
# Exchange Path configuration
# -----
# OutputPath = "C:\\"
#   Default OutputPath is "exchange" folder in local path
# WTEspritUserModelsPath = "C:\\"
#   Default WTEspritUserModelsPath is "UserModels" folder in local path
# WinToolAppPath =
#   Default WinToolAppPath is set in registry
OmitComments = false
ignore_TransferredFlag = true

# Shape configuration
# -----
ShapeFormat = DXF
# DXF format is required for this application
ShapeAppPath = "C:\WinTool2006"
#   Default ShapeAppPaths are "localpath", "registry settings" and "WinToolApp-
#   Path".
SkipShapeGen = False
#   No Shape file is created if set to true

# Interface operation control
# -----
DefaultToolType = 1
#   Regular toolType is set by the user for each WinTool tool class
QuietMode = true
#   use the "false" option for debugging

# PostProcess command
# -----
PostProcessCmd = cmd /C copy file.txt Exchange\file.txt
PostProcessCmd = taskkill /F /IM wt-ug*
hlCopyFileToOutputPath = WTESFinished.txt
#   Application to be launched after collecting tools
#   Currently no post process command is used

# Language resource file and settings
# -----
ResourceFile = "WT-Esprit-Interface.res.xml"
ResourceCulture = en-US
#   for German use: ResourceCulture = de-DE

# log file options
# -----
LogFile = WT-Esprit-Interface.log
log = true
# --- End of configuration file ---
```

WTEsprit.cfg

WTEsprit.cfg is located in the folder [\[Public Documents\]\WT-Esprit-Interface](#)

```
# Configuration file for WTEsprit.dll and WTEspritGetShape.dll
# -----
# Copyright 2014 WinTool Computer AG

# Defaults for Assembly Input Rotating Tools
# -----
Orientation = 1
TurretID = 1
StationID = 1
XTCMovement = 1
YTCMovement = 1
ZTCMovement = 1
IgnoreToolShiftForHolderBase = 0
# Setting this to 1 does not adjust ToolShiftZ acc. holder size

# Defaults for ToolList Export
# -----
#
ToolListsIdent=328
# 328 = ESPRITNAME, out of "Miscellaneous Register"
ToolListsDescript=462
# 462 = ESPRIT ProgramName, out of "CL File Register"
MachineName=1592
# 1452 = ESPRIT MachineName, out of "CL File Register"
MachineNr=1561
# 1355 = ESPRIT ToolHolder, out of "CL File Register"
ToolListsWho= 1593
# ESPRIT Comment, out of "CL File Register"
ToolListsNCP=155
# 155 = ESPRIT ProgramNumber, out of "CL File Register"
DeleteUnusedTools=0
# Tools loaded into the ESPRIT model but not used within
# the current NC-Program, will be deleted if parameter is set to 1.
ToolOutputorderByMillOperation = 0
# If Parameter =1 Milling Tools are exported in sequence of usage
# used tools are exported only if this parameter is set to 1
```

The above mentioned parameters are listed in the "ESPRIT Post Processor help". The next chapters will show you where to find them in the menu.

```
# Custom setting import control
# -----
#ImportCustomSettings = 1,2,3,4,5,6,7,8,9,10

# Enable custom mapping of WinTool C1-5 C8, C9 and C11-C15 values to
# ESPRIT Custom Settings 1-10
# -----
#CustomSetting1 = 1
#CustomSetting2 = 2
#CustomSetting3 = 3
#CustomSetting4 = 4
#CustomSetting5 = 5
#CustomSetting6 = 11
#CustomSetting7 = 12
#CustomSetting8 = 13
#CustomSetting9 = 14
#CustomSetting10 = 15
```

```
# Enabling import of tool cutter DXF shape in lathe machining  
# -----  
#enableShapeInLatheMachiningMode = true
```

ESPRIT Parameters in CL-Register and Custom Settings

Enable data fields for custom properties:

- Select "Tools", "Options" and activate the tab "machining".
- Mark the selection box "custom page" to enable entering custom setting values

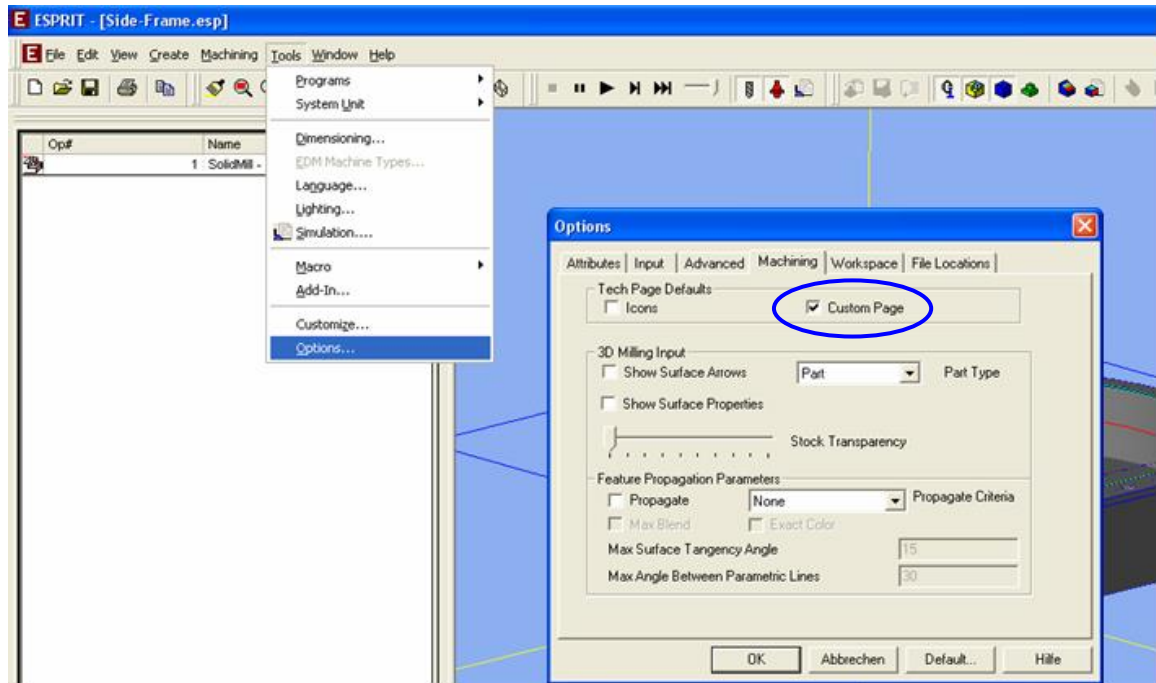


Figure 38 Marked selection in the box TechPage Defaults

To set values for CL-Register fields open the "Machine Setup" windows:

- From the "Common Machining" menu select "Machine Setup".

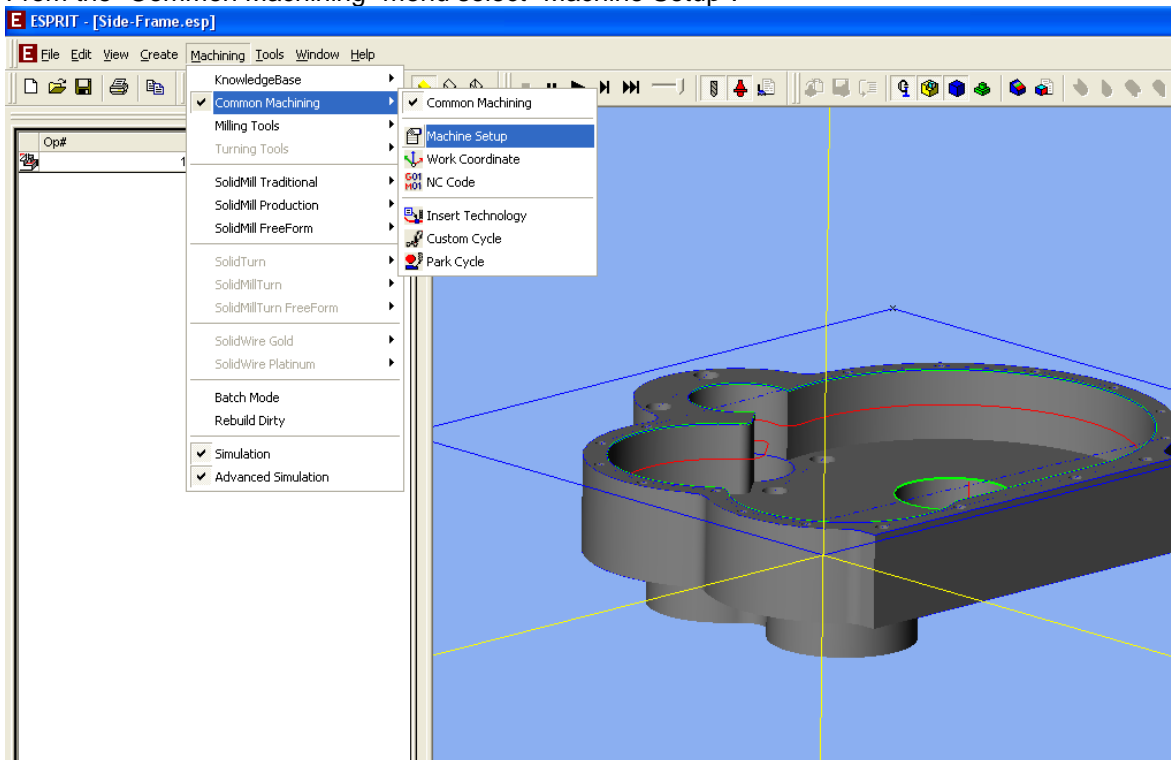


Figure 39 Select the field Machine Setup

or

- Right-click inside the Operations page of the Project Manager (press F2 to display), then select "Edit", "Edit Machine Setup".
- Select the tab "General" to change the values in the CL register

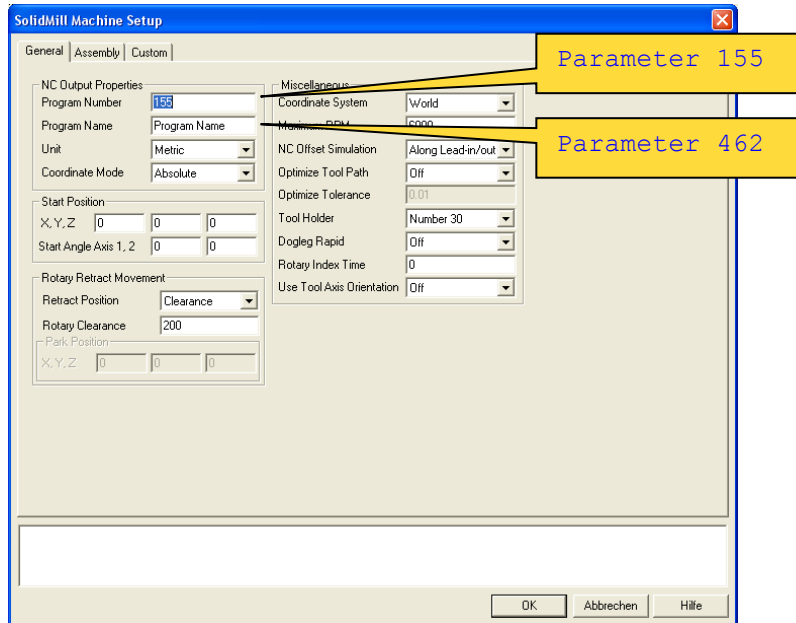


Figure 40 Enter Parameter in the menubar General

- Select the tab "Custom" to change the values of custom property fields.

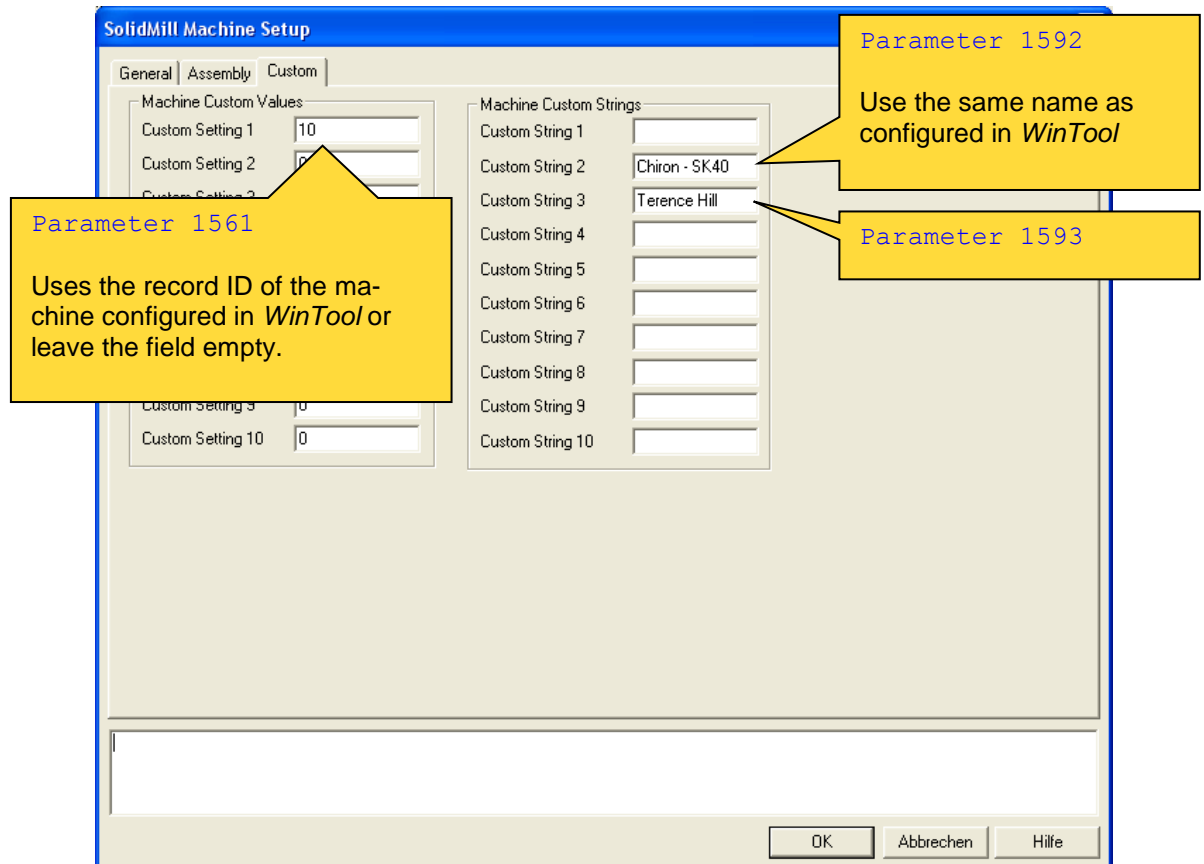


Figure 41 Instruction SolidMill Machine Setup

Supported Esprit Tool Types

Face Mill (Walzenstirnfräser) /ES08

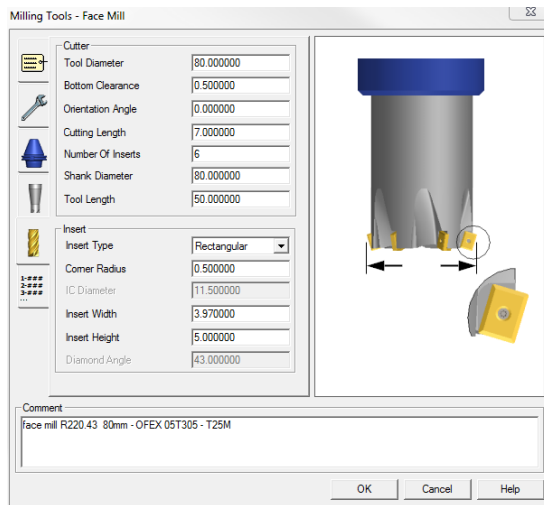


Figure 42 Milling Tool_1

End Mill (Schافتfräser) /ES01

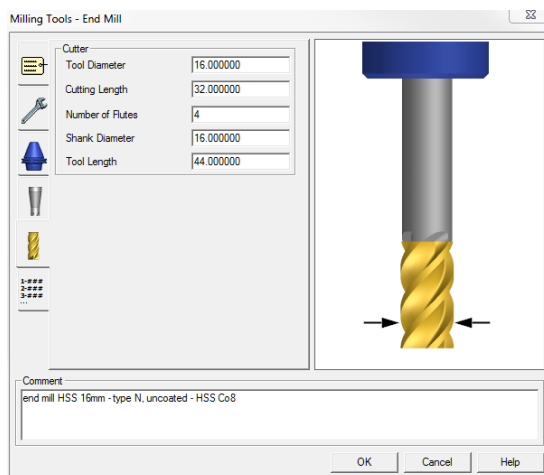


Figure 43 Milling Tool_2

Bull Nose End Mill (Formfräser) /ES07

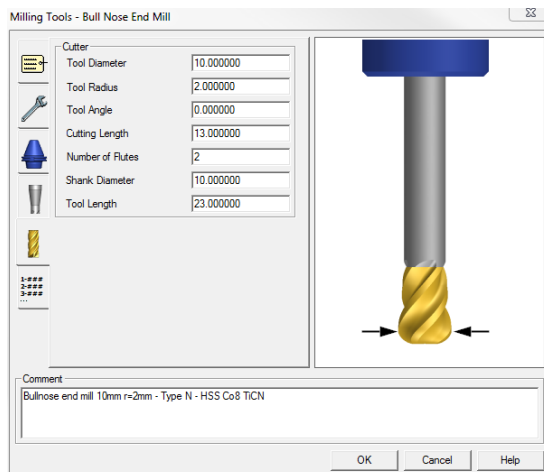


Figure 44 Milling Tool_3

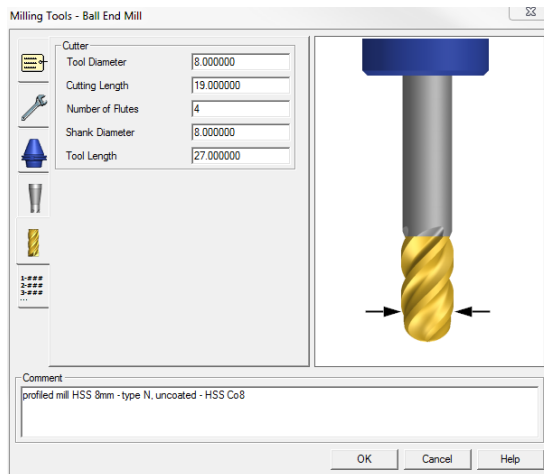
Ball End Mill (Kugelfräser) /ES09

Figure 45 Milling Tool_4

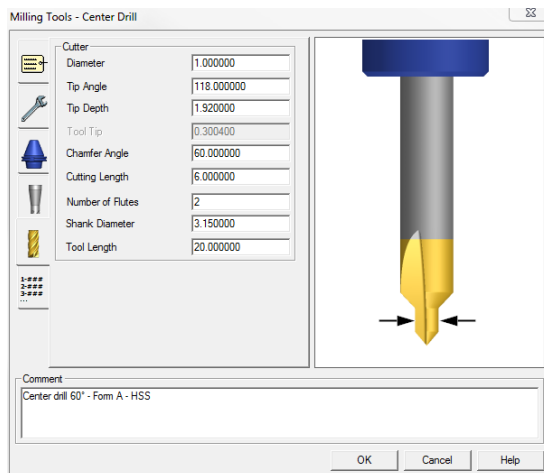
Center Drill (Zentrierbohrer/Stufenbohrer) /ES03

Figure 46 Drilling Tool_1

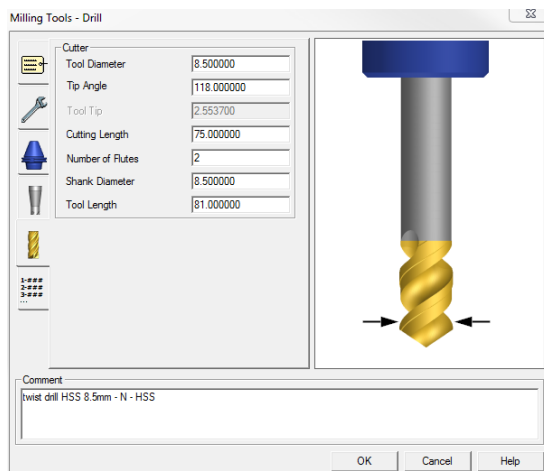
Drill (Bohrer) /ES02

Figure 47 Drilling Tool_2

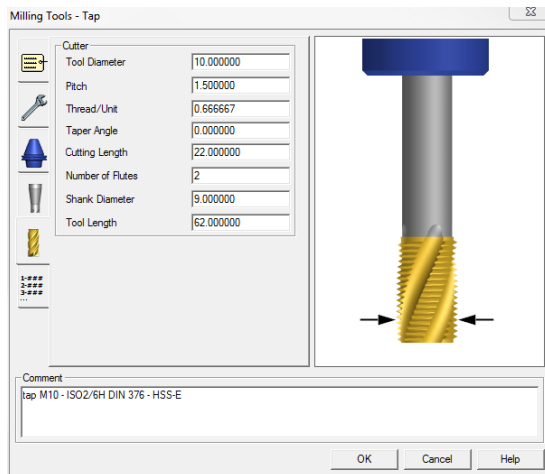
Tap (Gewindebohrer) /ES04

Figure 48 Tap drill

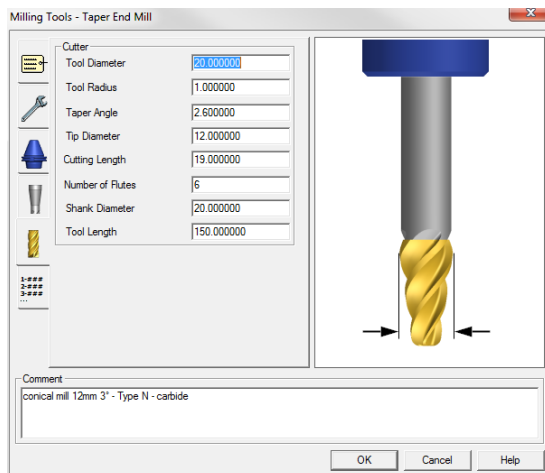
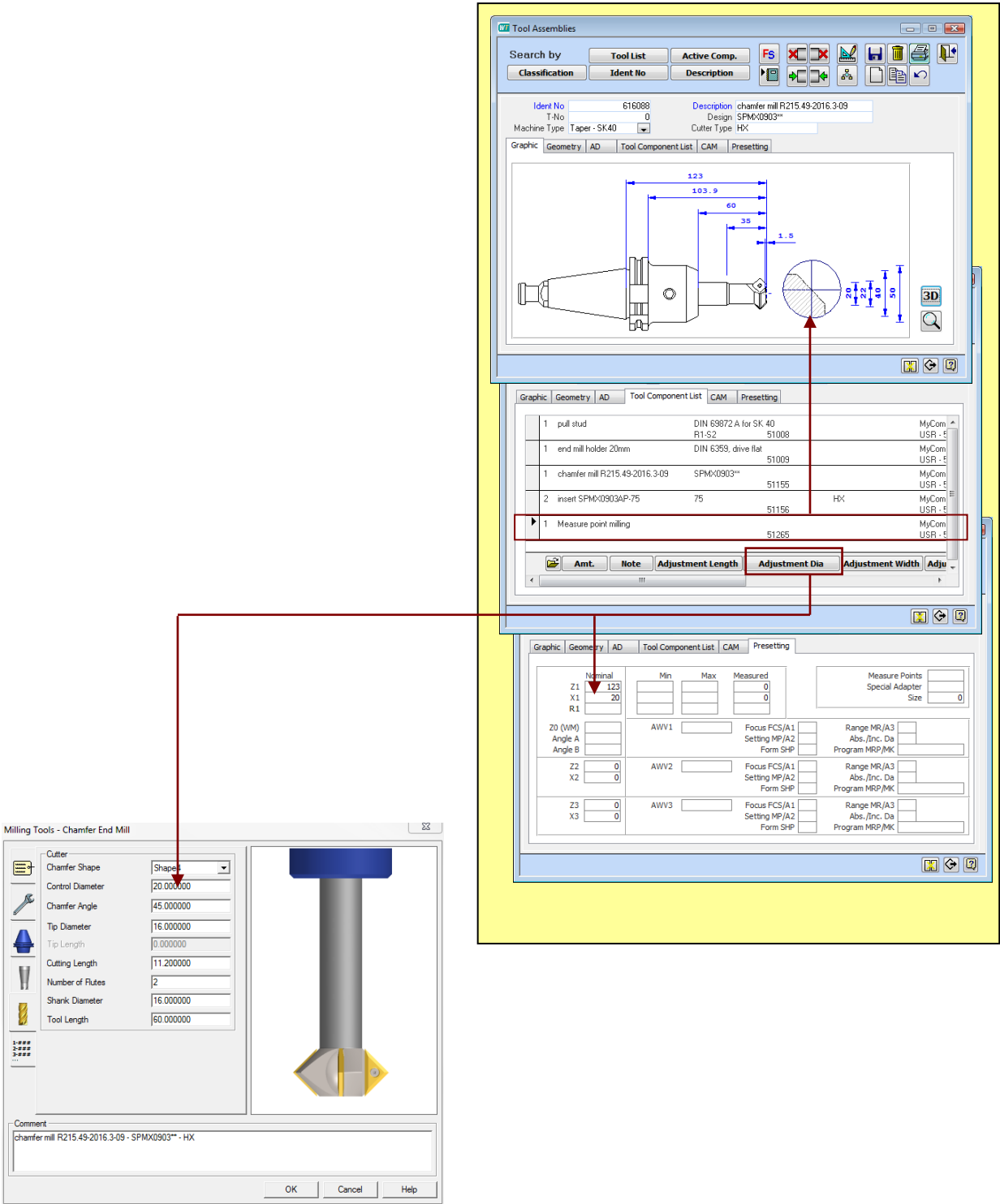
Taper Radius End Mill (Konischer Fräser) /ES10

Figure 49 Milling Tool_5

Chamfered End Mill (Fasfräser) /ES11



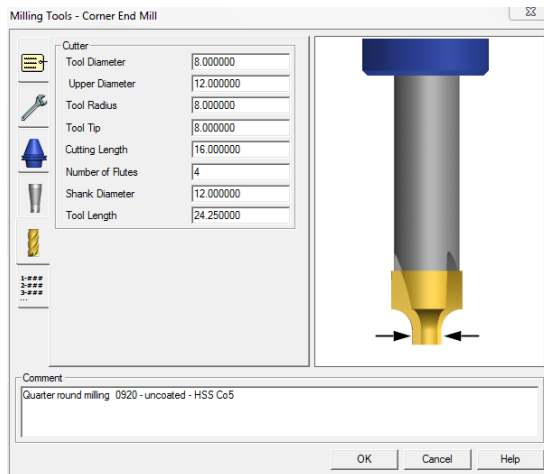
Corner Round Mill (Viertelkreis Fräser) /ES12

Figure 51 Milling Tool_7

Note: Tool Radius is negative in *WinTool*

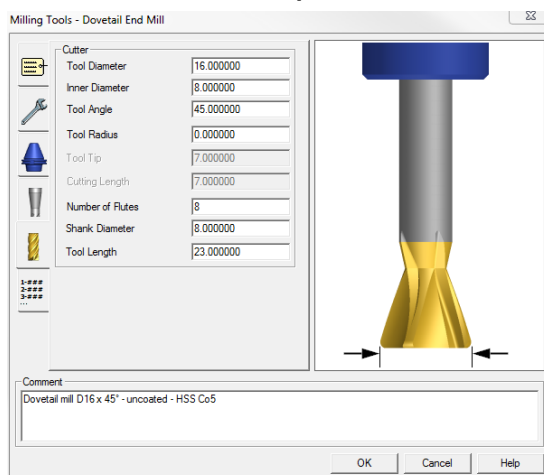
Dove Tail End Mill (Schwalbenschwanz Fräser) /ES13

Figure 52 Milling Tool_8

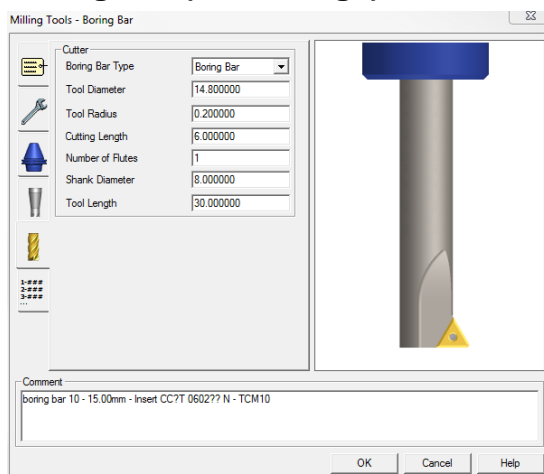
Boring Bar (Bohrstange) /ES06

Figure 53 Boring Bar

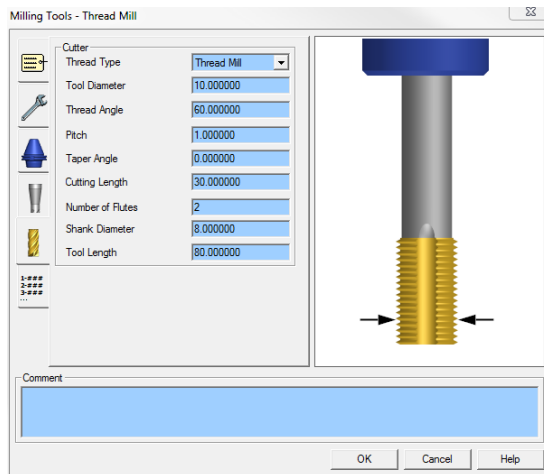
Thread Mill (Gewindefräser) /ES20

Figure 54 Thread Mill

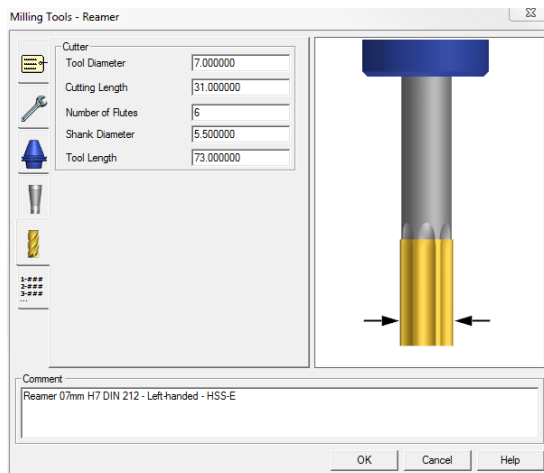
Reamer (Reibahle) /ES05

Figure 55 Reamer

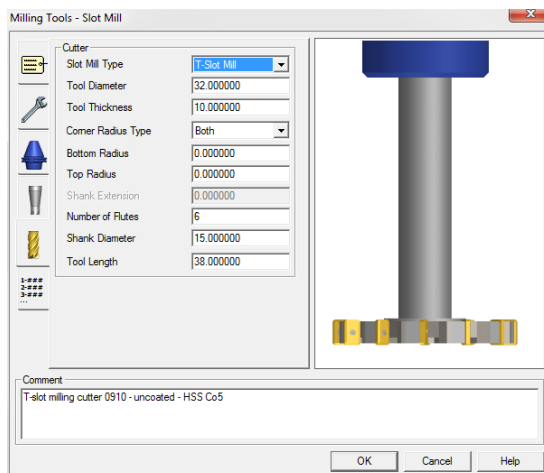
Slot Mill (Scheibenfräser) /ES25

Figure 56 Milling Tool_9

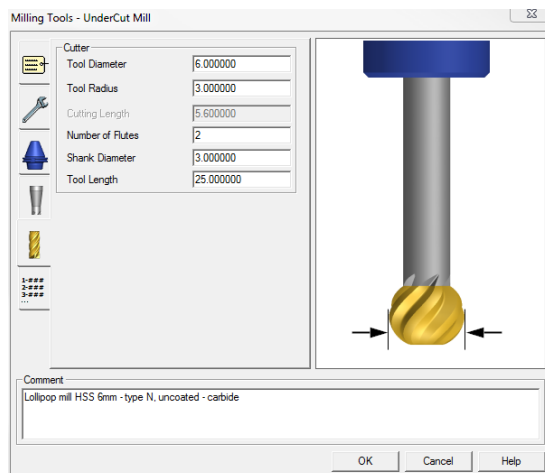
UnderCut Mill (Lollipop Fräser) /ES26

Figure 57 Milling Tool

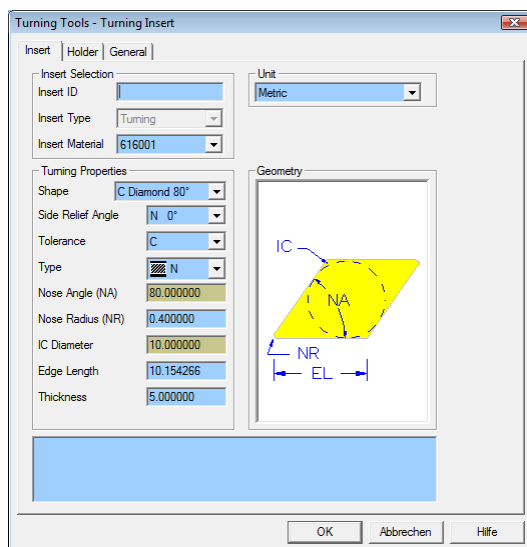
Turning Tool (Drehwerkzeug) /ES16

Figure 58 Turning Tool_1

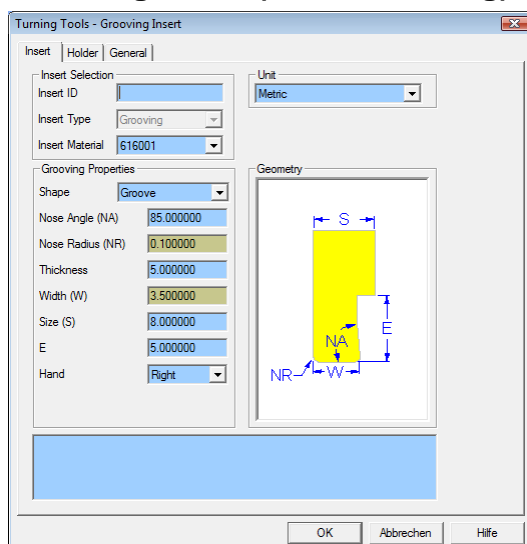
Grooving Insert (Stechwerkzeug) /ES17

Figure 59 Turning Tool_2

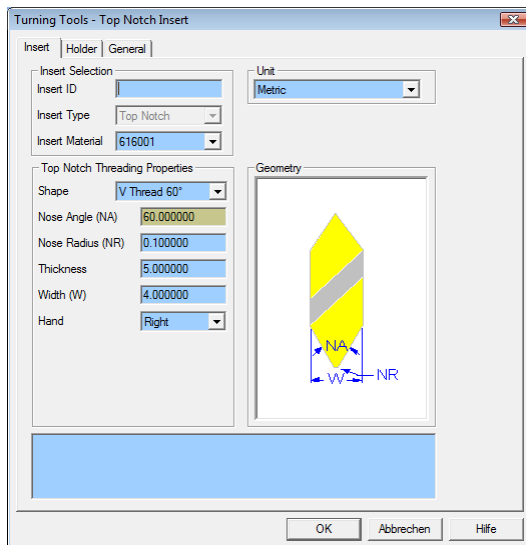
Top Notch Insert /ES18

Figure 60 Turning Tool_3

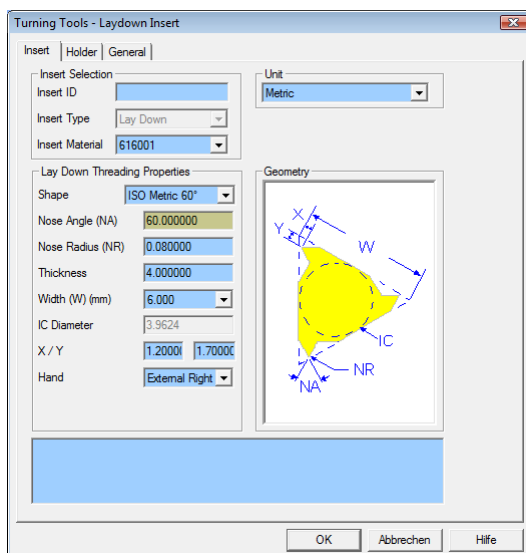
Laydown Insert /ES19

Figure 61 Turning Tool_4

Custom Milling Tool /ES14

See chapter [Custom Specific Assemblies with ETL](#)

Custom Turning Tool /ES15

See chapter [Custom Specific Assemblies with ETL](#)

Not Supported Esprit tool types

- Mini-Turning
- Mini-Grooving
- Mini-Boring
- Undercut Mill

ESPRIT KnowledgeBase Database Connection

The WT-Esprit-Interface uses the KnowledgeBase database connection information "DBDatabase", "DBServer", "DBUsername" and "DBPassword" from the following ESPRIT registry path to connect to the database. If they are missing, they must be created manually.

64-Bit systems:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\D.P.Technology\ESPRIT\Setup

32-Bit systems:

HKEY_LOCAL_MACHINE\SOFTWARE\D.P.Technology\ESPRIT\Setup

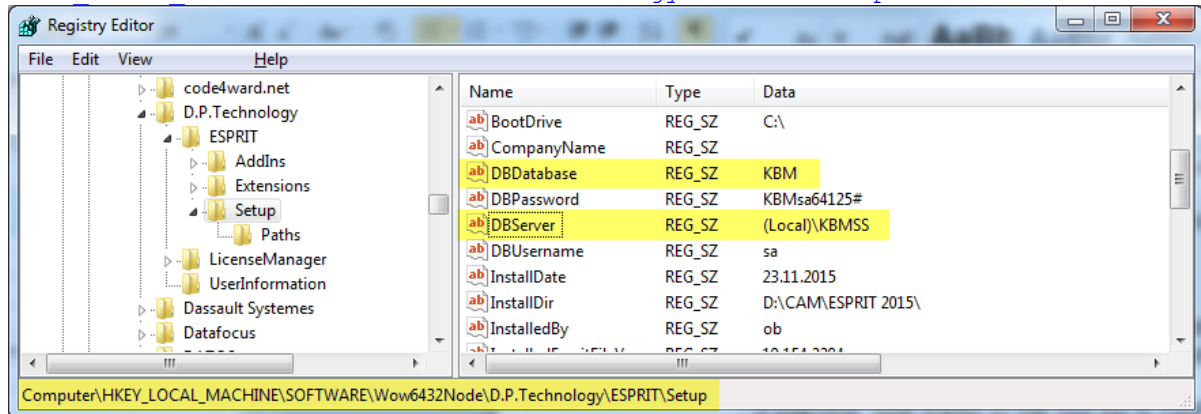


Figure 62 If necessary create a ESPRIT registry path

Known Issues

Message: WTEsprit / Runtime Error 13, Type Mismatch

Different Versions of Esprit sometimes provide a different programming interface. This error can occur if the version of the WT-Esprit-Interface doesn't match the version of your installed ESPRIT software. Please check whether there is a WT-Esprit-Interface available that matches your ESPRIT Version.

Message: "Environmentvariable X not set" when starting ESPRIT

Restart the computer. If the message still appears, reinstall the interface.

Message: "Connection to KBM Database could not be established" and "Provider cannot be found. It may not be properly installed."

Install the "SQL Native Client". The installation files are located in the "Support" folder of the WT-Esprit-Interface setup package.

- 64-Bit Windows: sqlncli_x64.msi
- 32-Bit Windows: sqlncli.msi

All the tool solids are placed to the spindle on program simulation

Unmark the checkbox "Automatically Hide and Show Station Solids" In the "Accessories Add-In Options".

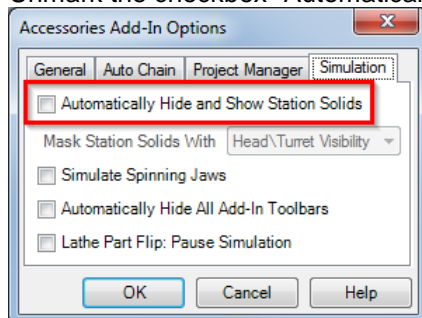


Figure 63 Add-In Options

History

2.15.12 (15.11.2017)

- Compatible with ESPRIT 2017R2
- Support for license keys with more than 7 characters

2.15.11 (4.8.2017)

- Compatible with ESPRIT 2017
- Corrected placement of turning tools when using
 - non-standard axis configuration
 - linear movement axis
 - no axes
- Supporting turrets with rotation axes different than Z+ (0/0/1)
- Improved import of non-standard (e.g. 45°) angled tools for Z+ and X+ turret rotation axes
- Tool shape import of mills/drills in turning tools can be enabled by setting "enableShapeInLatheMachiningMode"
- Import of ESPRIT tool custom settings can be changed using settings "CustomSetting1-10"
- Station "Turning Tool Z Rotation Angle" value is now used to rotate the turning tool
- Corrected import of milling/drilling tools with angled head holder
- Corrected import of back boring tools
- Updated instructions for creation of custom ETL tools using /ES14 and /ES15

2.15.10 (4.5.2016)

- Compatible with ESPRIT 2016
- Corrected turning tool drill holder placement when orientation is Z -

2.15.9 (27.11.2015)

- Compatible with ESPRIT 2013/2014/2015
- Corrected face mill import
- Added configuration setting "ImportCustomSettings" to selectively enable/disable import of ESPRIT custom settings

2.15.8 (14.07.2014)

- Corrected tool and shank diameter import of boring bar tools

2.15.7 (02.07.2014)

- Corrected handling of tool assemblies which contain the character '#' in the description

2.15.6 (01.07.2014)

- Using Unicode character encoding to support all character sets

2.15.5 (30.06.2014)

- Support for *WinTool* 2011 – 2014
- Separated program files and user data into different directories
- Corrected lead angle calculation of neutral turning tools
- Loading STL with ETL file if it exists
- Improved usability of license login
- Included newest version of WT-MakeList (see detailed changes in WT-MakeList manual)
- Included newest version of WT-ToolExport:
 - Saving selection state of "preferred only" filter

- Improved readability with high DPI settings
- Single tool assembly import: Transferring ident-no for t-no if "T-No=Ident No" is activated in the machine type

2.15.4 (31.10.2013)

- Included newest version of WT-MakeList due to issue with SQL Server

2.15.3 (21.10.2013)

- Compatible with WinTool 2013, 2012 and 2011
- Corrected tool shift of tool assemblies with radial head
- Removed WinTool database parameters from WT-Esprit-Interface.cfg
- Included newest version of WT-MakeList (see WT-MakeList manual for details)

2.15.2 (05.04.2013)

- Changed import of noncutting diameter to avoid invalid tool models
- Corrected import of grooving insert property E
- Improved error messages
- Removed WTEsprit.cfg parameter "ExportUnusedTools"

2.15.1 (09.01.2013)

- Compatible with WinTool 2012
- Included newest versions of WT-ToolExport and WT-MakeList
- Better compatibility with tools using diamond shape inserts
- Better compatibility with pilot drills
- Supporting tool shapes with noncutting diameters
- Resizable tool selection window

2.14.2 (23.05.2012)

- Compatible with WinTool 2011
- Included newest versions of WT-ToolExport and WT-MakeList
- Improved error handling

WT-ToolExport

- Start-up time with large databases is quicker

2.14.1 (13.02.2012)

KBM Integration

- Overwriting CutData if everything but F&S are the same

Setup

- Re-integrated WT-MakeList
- Automatically setting path and file rights for easier configuration

2.14 (13.10.2011)

Tool Selection

- Better integration in WinTool
- More filtering options
- Easier usage
- Display of tool information and cutting data

Tool Import

- Corrected value for ToolLength

- Changed minimum value for Face Mill InsertEdgeLength and InsertWidth
- Changed FluteLength definition for BoringBars
- Completely rebuilt KBM Integration with support for remote servers

WinTool ToolList creation

- Easier Configuration
- Better Material Selection

2.13.1 (11.03.2011)

- Corrected issue with missing file WT-MakeList.cfg in setup
- Improved STL rotation algorithms
- Added STL rotation algorithms for tool changers with any B-axis angle
- Setting insert type acc. WinTool Schema for face mills
- Corrected tool length calculation
- Importing taper angle for taps
- Corrected calculation of taper angle for thread mills
- Correctly setting thread type for thread mills acc. selected WinTool schema
- Corrected tool angle calculation for bullnose mills
- Corrected ToolUpperDiameter for corner round mills
- Support for Back boring bars (Rückwärtssenker)
- Support for UnderCut Mills (Lollipop Fräser)

2.12.0 (02.11.2010)

- Fixed Interface registration issue in setup
- Support for systems with decimal comma (e.g. Germany)
- Improved cut data transfer algorithms
- Usage of multiple samples of the same tool on different turret stations
- Improved tool ID reading algorithms
- Moving STL with tool if it is moved to another station
- Corrected CustomSetting6 value usage for standard mills and drills
- Corrected calculation of InsertWidth for face mills
- Corrected cut data reading from WinTool allows usage of material field "User"
- Supporting thread angles for thread mills
- Support for single-point thread mills
- Support for Tool Types /ES14 and /ES15 (custom tools)

2.11.0 (20.08.2010)

- Support for Esprit 2011
- Better sample files
- Support for Tool Types /ES14 and /ES15 (custom tools)
- Support for STL orientation for different mounting orientations for rotating tools
- Rotating STL according mounting orientation useable without license
- Changed color and transparency of STL files on import
- Support for embedded STL files
- Corrected STL orientations for turning tools
- Not rotating STL if CS6 setting is unknown
- Message box if CS6 for turning tools is invalid

- Reloading STL at beginning of simulation
- Basic implementation of STL rotation on automatic tool changers
- Support for ETL files
- Tool import and export useable as trial version without license
- Support for crossheads
- Corrected insert type
- Support for different cutting types
- Corrected import of cutting data (importing all cutting data at first import)
- Support for WinTool 2010 field TypeOfCut
- Using tool geometry data if no DXF file was generated
- Corrected Insert Type

2.10.3 (01.07.2010)

- Ensured compatibility with WinTool 2009 and WinTool 2010

2.10.3 (07.04.2010)

- Support for Esprit 2010 SP3

2.10.3 (25.11.2009)

- Support for Esprit 2010

2.10.3 (11.09.2009)

- Bottom Radius for T-Slotter supported
- Mounting orientation, Station and Turret ID for ToolLists supported
- STL position supported for all different mounting orientations

2.10

- A set of all assemblies linked to one machine type can now be transferred
- Chamfer mills without adjustment diameter supported
- Round inserts for face mills supported
- Bottom radius now supported
- Required write permissions for Exchange-Folder and Registry mentioned in manual
- Support for new Coolant Types in WinTool assemblies
- Final correction in STL movements for Mounting Orientation

2.9.11

- Correction in STL movements for different Mounting Orientations
- WTMakelist automatically installed
- Description for ToolShift Z added in manual

2.9.10

- New data fields in Esprit 2009 are supported
- Grooving tools are supported
- Mounting orientation supported with data and STL adjustment
- Adjustment of holder position according the cone size configured for the spindle
- Mounting Orientation, Station ID and Turret ID supported for tool list transferred ("Get" and "put" function)

2.8.6

- Support for Esprit 2009 and 2008
- WinTool Assembly fields C1 up to C10 are transferred to the ESPRIT custom fields

- ToolShift is recalculated properly after assembly is re-mounted in different orientation.
- STL are re-positioned after assembly is re-mounted in different orientation.
- STL now supported for rotating assemblies
- If STL is available it is loaded automatically (no more usermodel flag required) .
- When loading the STL the "suppressed" box is not marked any longer.
- WinTool default orientation for lathe tools required for proper calculation of mounting orientation.
- Put: Sequence of the assemblies in can be forced to be the same as the used in the Esprit operations.
WTEsprit.cfg Parameter ToolOutputorderByMillOperation=0 or 1.
- Put: Station + Turret + Orientation now exported to exchange list but not yet imported to WinTool (planned for WinTool 2009).
- If station is set to ToolTip, the ToolShift values are set. If station is set to Holder Base, no ToolShift values are set. (Rotating tools only)
- Automatic adaptation of machine configuration to ToolTip for lathe tools can be activated by a new WTEsprit.cfg parameter: LathToolAlwaysToTip = 0 or 1.
- Extended configuration (cfg) and rsx files
- Adjusted STL sample files

2.8.4

- Spindle Direction from custom field C6 repaired (Woodward, Jeff, WG. 30.10.08)
- For Drills ToolTip (TT) now calculated properly (Woodward, Jeff, WG. 30.10.08)
- Now allowed to transfer assemblies not linked to a machine type.

2.8.2

- No more " - sign as last character of the comment
- Tools without assigned machine type can be transferred now
- ToolTip (TT) correctly calculated for tool type 2 (Drills)
- Spindle direction now transferred from field C7
- ThreadPerUnit: New specifications for metric and inch
- Default LatheToolOrientation now correctly determined
- Inside Turning Tools: Dimension A and D now correctly supported.

Fix: 2.8.1, dll 2.0.101

- Coolant Type: Default supported in assembly field C10
- Inch tap: Pitch supported correctly
- Cutting length of turning tools correctly supported
- No more error message if 2 cutting or 2 name giving components within the assembly
- ToolShift now recalculated according mounting orientation
- STL for rotating Tools now supported
- STL is now automatically loaded if present in usermodels path (no more flag required)
- If mounting type "Holder base" is selected for a station, ToolShift is set to 0
- Easier password handling for database access of the interface

2.7.4

- WT-Esprit.dll for Esprit 2008 now registered in Setup

2.7.3

- Cutting conditions in KB are now linked to a "ToolMaterial"
- Mounting procedure tools and STL optimized

2.7.2

- Versions for ESPRIT 2007 and 2008 available
- Problem with decimals for cutting conditions solved

2.7.1

- Round shank for boring bars supported
- "LatheToolOrientation" is transferred for horizontal (Z-direction) machine adapter
- "Mounting Orientation" and "LatheToolOrientation" for tools (i.e. V3) can be preset in assembly field C6
- Default for "Spindle Direction" supported
- Value ThreadPerUnit is transferred from inch components
- Station ID is exported to ToolList (but not yet imported)
- Color for STL models is set to silver and STL is embedded in project now
- If T (Toolnumber) is set for assembly, it is used as station number for turning tools
- ToolShift is set to presetting value X,Z if configured as ToolTip, else it is set to 0
- Toollist export (put) checked and description extended for default transfer

2.6.0 (03.07.2007)

- Turning Tools supported
- STL Models supported for simulation
- Enhanced support for Holder Diameter
- Full support for Chamfer Mills
- Full support for Quarter round mills
- Full support for dove tail mill
- Full support for thread mills
- Old cutting conditions are no more deleted in KB
- Cutting conditions for drills adjusted
- New Tool selection module (WT-ToolExport)
- Enhanced error handling and better language support

2.2.0

- #696: Neck diameter and die overall length correctly supported (Fill)
- #697: Esprit-Type /ES7 calculation of arc for Lollipop corrected.
- #698: Esprit Tool Type 7 CRadius transferred from cutting component (Pres Block)
- #699: Esprit Tool Type 8 CRadius transferred from cutting component (Centriforce)
- #700: Log File: No more warning appears when not needed. (Claval)
- #701: Quality field in KB is now filled with comment, before it was "Any" (DloG)

2.1.2

- User models Path supported
- New WTMakelist module implemented
- New Shape module implemented
- Separate Interface versions for ESPRIT 2006 and 2007
- Complete Setup D and E
- Proper Text, English or German, is installed for assembly queries

1.1.2

- Automatic GetShape call if simulation is started with properties but without profile
- DXF support with GetShape
- Work material import to KB

- Work material class export from WTEsprit DLL to WTMakelist

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