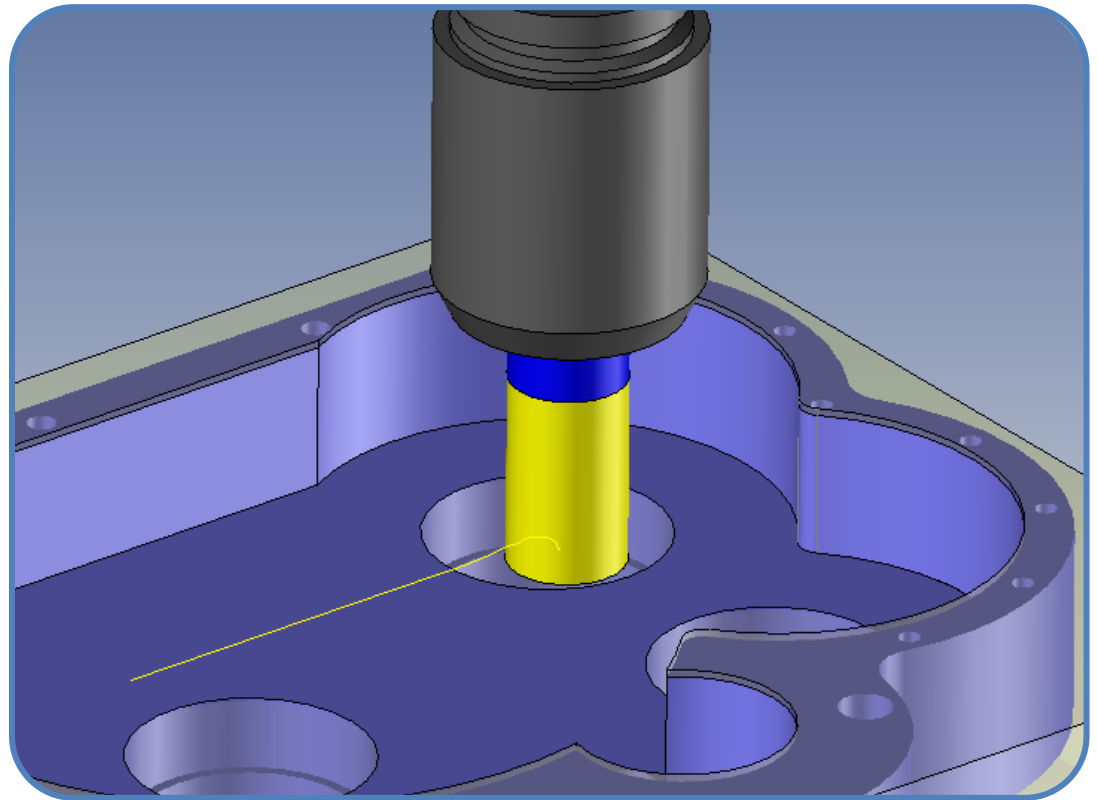


WT-TopSolidCam Interface



Manual

***WinTool* Interface 1.4.6 for TopSolid'Cam 7**

The WT-TopSolidCam-Interface enables the user to select and transfer tool assemblies from the *WinTool* database to the TopSolid'Cam environment.

After production of a NC program, a complete list of the tools used in the NC-Program will be stored back to the *WinTool* database for further processing in the company.

Requirements

- *WinTool* 2011 Professional or newer
- TopSolid'Cam 7.14 or 7.15

WinTool AG
Flüelastrasse 7
CH-8048 Zürich
Phone: +41 (0)44 401 00 55
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<http://www.wintool.com>

Content

| | |
|--|----|
| Summary | 4 |
| Job | 4 |
| Requirements..... | 4 |
| Licensing..... | 4 |
| Copyright..... | 4 |
| Installation | 5 |
| Directory Structure | 5 |
| New Installation..... | 5 |
| Update | 5 |
| Configure WT-TopSolidCam-Interface | 6 |
| Output Path | 6 |
| UserModels Path..... | 6 |
| Description | 7 |
| ComplementaryPartNumber / PartNumber | 8 |
| NCProgramNumber / ToolListDescription..... | 8 |
| ImportToolsToPocket | 8 |
| Configure TopSolid'Cam..... | 9 |
| For TopSolid 7.11 and older..... | 9 |
| For TopSolid 7.12 and newer..... | 9 |
| Import Button..... | 9 |
| Export Button | 9 |
| Supported TopSolid'Cam Tool Types | 10 |
| Cutting Conditions | 11 |
| Importing Tool Assemblies | 12 |
| Corner Radius | 13 |
| Assigning Tool Assemblies to a Pocket..... | 14 |
| Turning Tool Assembly Indexation Angle | 15 |
| Export Tool List To <i>WinTool</i> | 16 |
| Preparing Tool Data in WinTool | 17 |
| Grooving and Threading..... | 18 |
| Custom Tool Assembly Contour..... | 20 |
| Special Tool Assembly 3D Models..... | 21 |
| Software Structure..... | 22 |
| History | 23 |
| 1.4.6 | 23 |
| 1.4.5 | 23 |
| 1.4.4 | 23 |
| 1.4.3 | 23 |
| 1.4.2 | 23 |
| 1.4.1 | 24 |
| 1.4 | 24 |

1.3.224

1.3.124

1.324

1.224

1.124

Summary

Job

The WT-TopSolidCam-Interface enables the user to export all assemblies from the *WinTool* database into the TopSolid environment. Full graphic representation with tool holders and extensions are supported.

After production of a NC program, a complete list of the tools used in the NC-Program will be stored back to the *WinTool* database for further processing in the company.

Requirements

This Interface requires *WinTool* Professional 2011 or newer. TopSolid'Cam 7.12 and 7.13 are supported.

Licensing

You need a license agreement with *WinTool* AG, Switzerland.

Copyright

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

WinTool AG
Flüelastrasse 7
CH-8048 Zürich
Phone: +41 (0)44 401 00 55
info@wintool.com
<http://www.wintool.com>

Installation

Directory Structure

All user data is centrally placed the [\[Public Documents\]](#) WT-TopSolidCam-Interface folder:

| User data | Location |
|--|--|
| Default location of UserModels folder | [Public Documents] WT-TopSolidCam-Interface\UserModels |
| Default location of Exchange folder | [Public Documents] WT-TopSolidCam-Interface\Exchange |
| Configuration file WT-TopSolidCam-Interface.cfg | [Public Documents] WT-TopSolidCam-Interface |

Note: [\[Public Documents\]](#) on Windows XP is located in [C:\Documents and Settings\All Users\Documents](#) on Windows Vista and newer in [C:\Users\Public\Documents\](#)

New Installation

Log on with administrator rights to install the software on a PC. Install *WinTool* Professional first before you install the WT-TopSolidCam-Interface.

Download the latest WT-TopSolidCam-Interface software release from www.WinTool.com and start Setup.exe.

Follow the instructions in chapter [Configure WT-TopSolidCam-Interface](#) and [Configure TopSolid'Cam](#)

Update

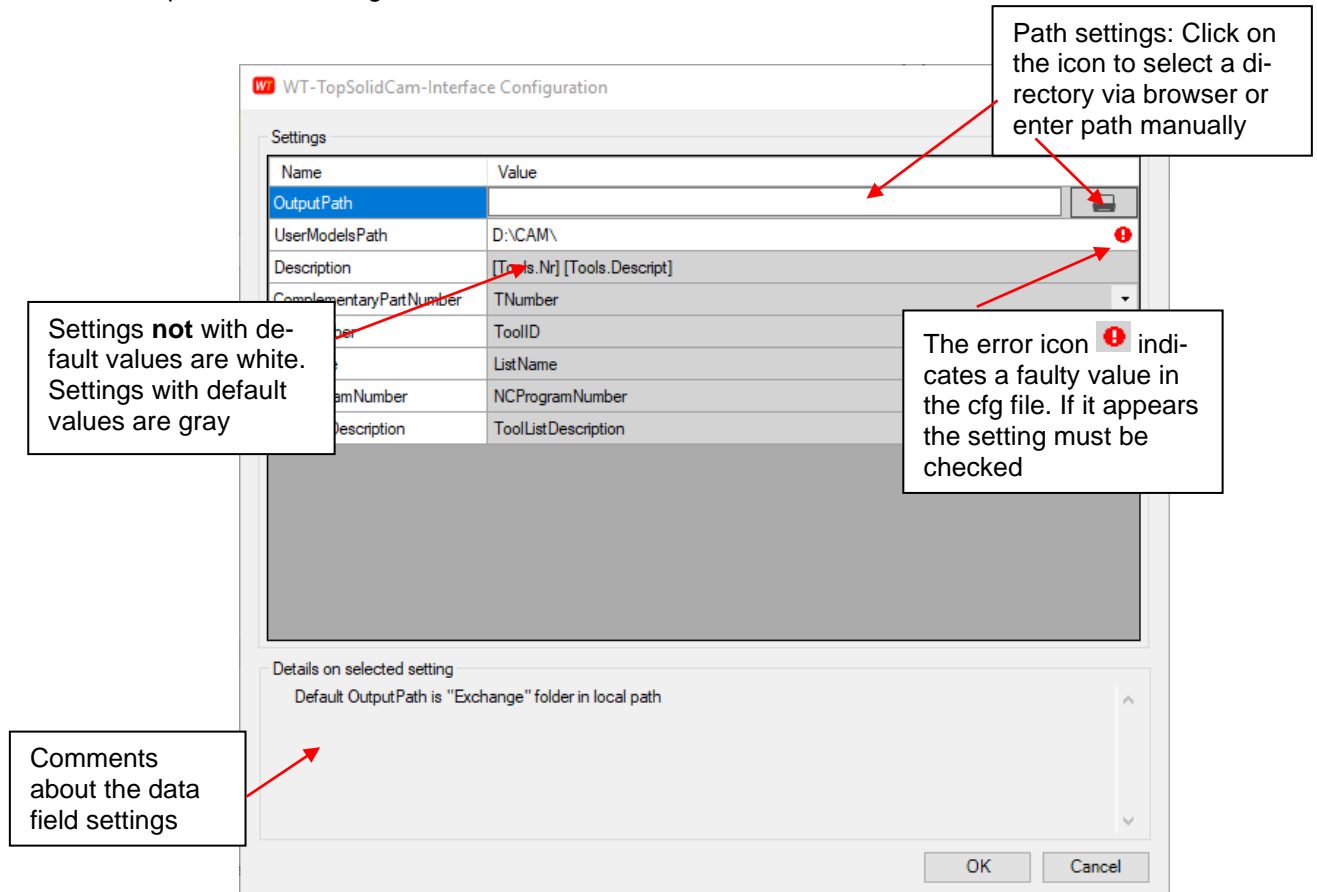
Download the latest WT-TopSolidCam-Interface software release from www.WinTool.com and start Setup.exe.

Follow the instructions in chapter [Configure TopSolid'Cam](#)

Open the interface configuration via "Start" > "All Programs" > "WinTool" > "WT-TopSolidCam-Interface" > "WT-TopSolidCam-Interface Configuration" and check the settings.

Configure WT-TopSolidCam-Interface

The configuration window allows you to check and change the settings of the WT-TopSolidCam-Interface. Open the configuration window via "Start" > "All Programs" > "WinTool" > "WT-TopSolidCam-Interface ..." > "WT-TopSolidCam Configuration"



<OK> stores all settings. <Cancel> exits the configuration window without saving.

The configuration window reads and stores settings in the file "WT-TopSolidCam-Interface.cfg" which is located in the directory [Public Documents]\WT-TopSolidCam-Interface. This file can also be edited with a text editor.

Output Path

The Output Path defines the directory for the data exchanges.

This directory must not be shared by multiple users because the data transferred via this directory is NC project specific and temporary only.

The default settings are:

OutputPath = [Public Documents]\WT-TopSolidCam-Interface\Exchange\

UserModels Path

The UserModels directory manages the transfer of tool contour graphics (DXF). WinTool links and manages these models and all NC programmers must access and share this data.

If you have multiple NC programmers you must create a UserModels folder on the server. It must be included in the backup schedule.

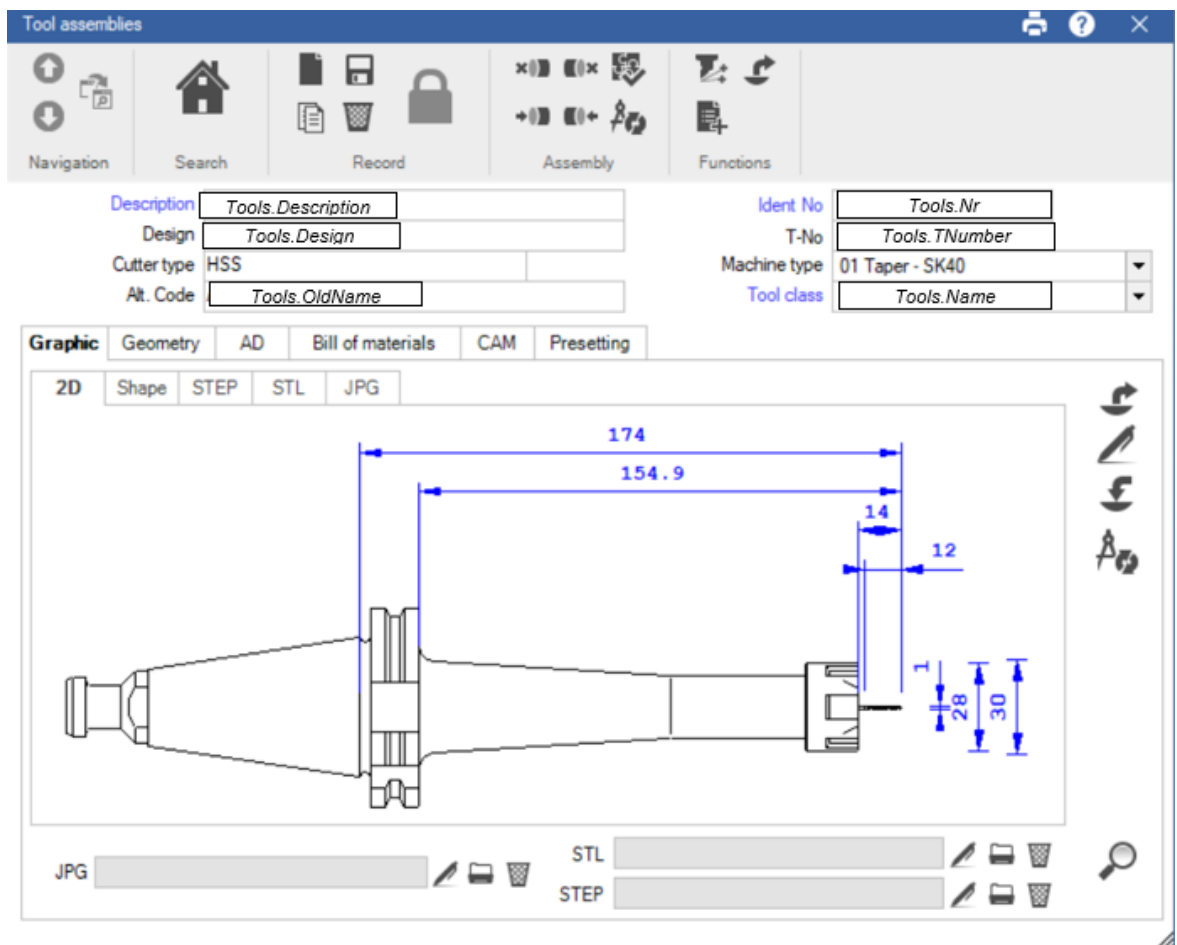
The default settings are:

UserModelsPath = [Public Documents]\WT-TopSolidCam-Interface\UserModels\

Description

As in TopSolid the Description is used to better identify tools, the interface makes it configurable how the Description is generated while importing Tool assemblies from WinTool, making imports more flexible. It is up to the user to define a custom naming convention. The interface, however, will provide a default convention which is backward compatible with older TopSolid Interface installations. With the new TopSolid Interface 1.4 (and newer) placeholders (put in square brackets) can be used to modify the Description. Most Tool values made in WinTool are supported. A short list of supported placeholders:

Tools.Nr, Tools.TNumber, Tools.Comment, Tools.Name, Tools.MachineNr, Tools.Descript, Tools.Design, Tools.MaskNr, Tools.ToolWidth, Tools.ToolLength, Tools.OldName, Tools.MDate, Tools.StockState



Special placeholders with dependent meanings:

- *TNumber* – (without Tools prefix) will become T from Lists if a list is imported, otherwise T from Tools if a tool is imported.

Important Notes:

- Placeholders have to be put in square brackets.
- Parameter Description is limited by TopSolid to 266 characters.

Example:

A setting like

[Tools.Nr] - [TNumber] - [Tools.Descript]

could be translated to

616021 - 0 - End Mill HSS 4x19 4FL

if imported via Tool assembly, or to

616021 - 123 - End Mill HSS 4x19 4FL

when imported via Tool list.

ComplementaryPartNumber / PartNumber

ToolID and T-Number are now completely configurable. In these 2 options you can select if you want the them to have the ToolID/T-Number or also be empty.

The **default** values are:

ComplementaryPartNumber – T-Number

ParNumber - ToolID

Note:

- ToolID must always be defined in one of them.

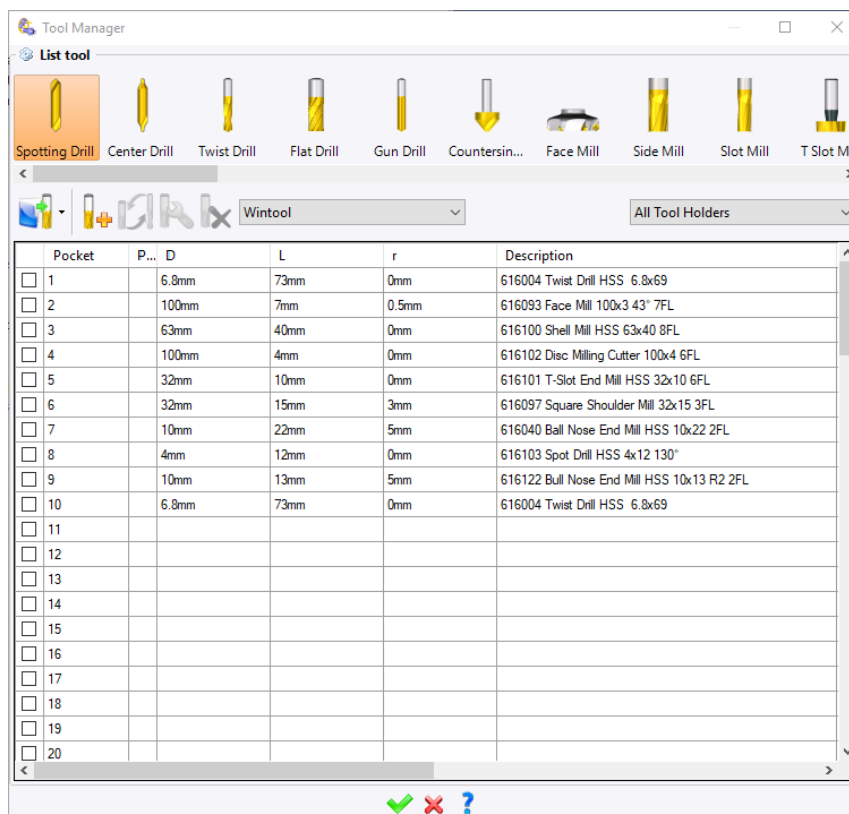
NCProgramNumber / ToolListDescription

These configurations are used for the Export of a Tool into WinTool with the PUT button. In which you can choose what you decide to export to these two fields. You have the choice between 4 options:

- ListName
- NCProgramNumber
- ToolListDescription
- Empty

ImportToolsToPocket

This configuration is used to Import the Tools directly into the Pocket list in TopSolid, if set to “True” it will import it directly into the “WinTool Tools” library and into the Pocket list. If set to “False” it will only import it in the “WinTool Tools” library.




Configure TopSolid'Cam

To access the WT-TopSolidCam import and export quickly, add the buttons to TopSolid'Cam:

For TopSolid 7.11 and older

- Open a machining project in TopSolid'Cam
- Select "Tools" > "Customize"

For TopSolid 7.12 and newer

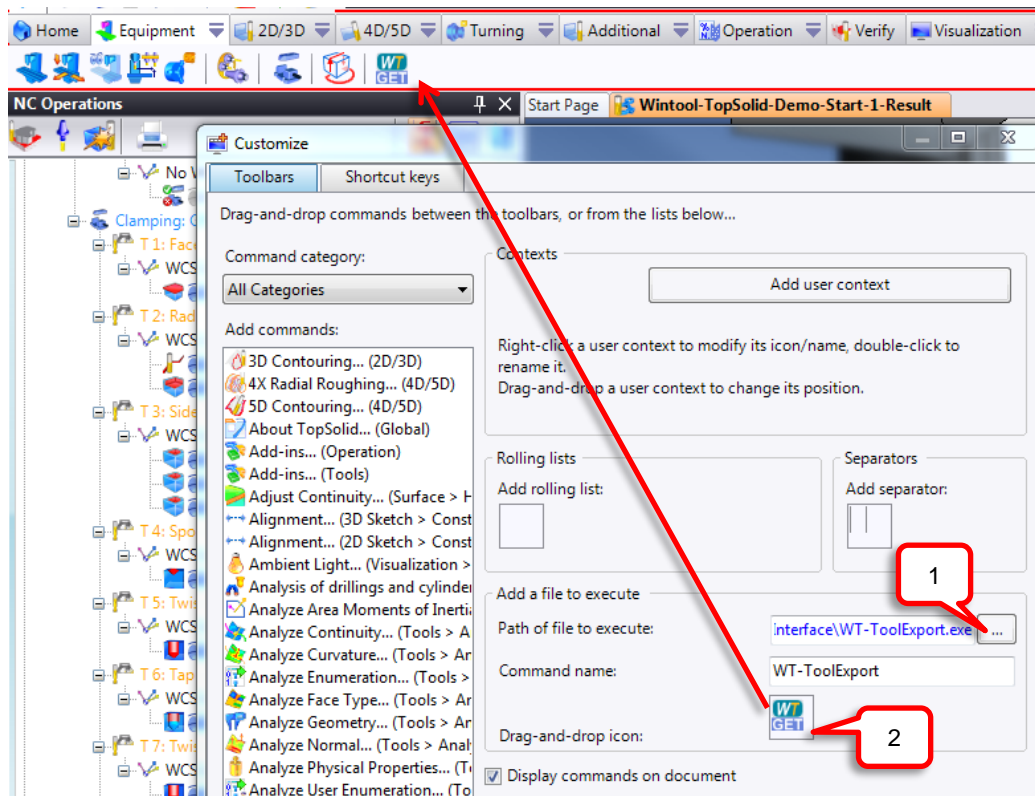
- Open a machining project in TopSolid'Cam
- Select "Tools" > press the "Menu"  button > press "Add" and add a menu with the name of your choice
- In the machining project select the created Menu

Import Button

1. In "Add a file to execute", click on "..."
 - Go to the WT-TopSolidCam-Interface installation directory and open the directory "7.11" or "7.12"
 - Select "WT-TopSolidCAM-GetTools.exe"
2. Drag and Drop the "WT-GET" icon into a toolbar "Equipment"

Export Button

1. In "Add a file to execute", click on "..."
 - Go to the WT-TopSolidCam-Interface installation directory and open the directory "7.11" or "7.12"
 - Select "WT-TopSolidCAM-PutToolList.exe"
2. Drag and Drop the "WT-PUT" icon into the toolbar "Equipment"

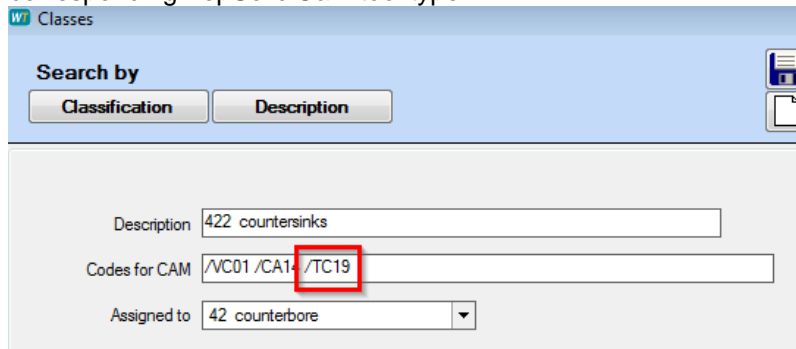


Supported TopSolid'Cam Tool Types

Each tool classification in *WinTool* must be assigned to the corresponding TopSolid'Cam tool type. This is done automatically when you import tool assemblies.

You can modify the assignment manually:

In *WinTool* select Settings > Class, then select a classification. In the data field "Note" you can assign the corresponding TopSolid'Cam tool type.



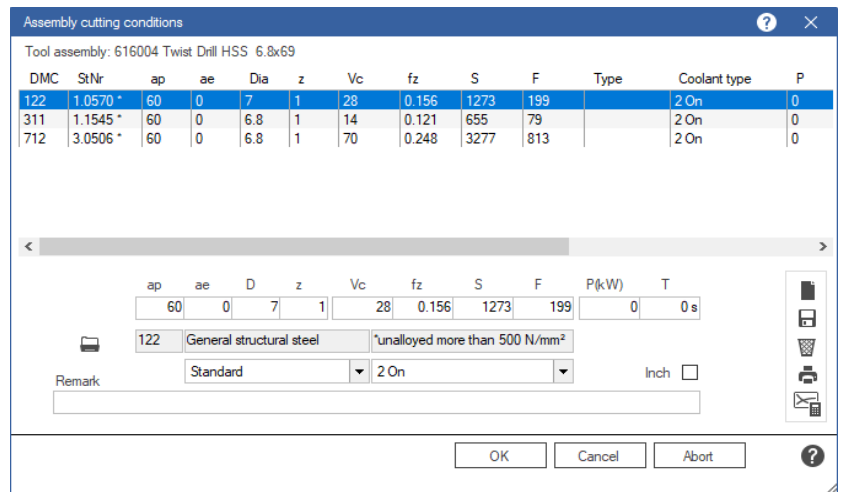
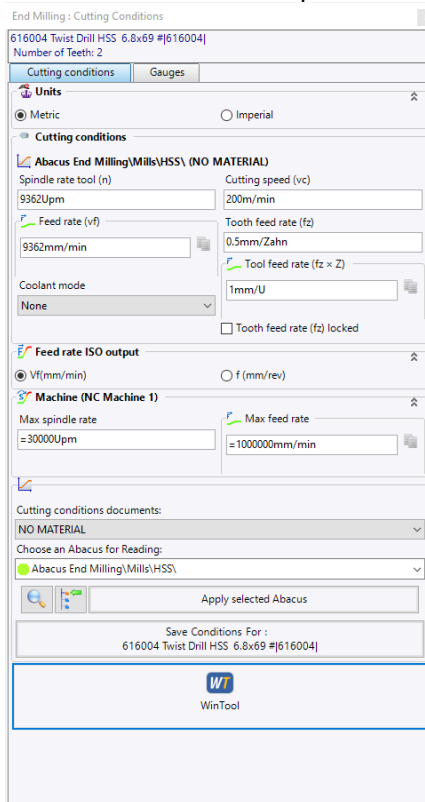
| TopSolid'Cam Tooltype | | WinTool Classification |
|------------------------------|-------------------------------|------------------------|
| Deutsch | English | |
| Anbohrer | Spotting Drill | /TC01 |
| Zentrierbohrer | Center Drill | /TC02 |
| Spiralbohrer | Twist Drill | /TC03 |
| Flachbohrer | Flat Drill | /TC04 |
| Tieflochbohrer | Gun Drill | /TC05 |
| Planfräser | Face Mill | /TC06 |
| Schaftfräser | Side Mill | /TC07 |
| Langlochfräser | Slot Mill | /TC08 |
| T-Nutfräser | T Slot Mill | /TC09 |
| Eckradienfräser | Radiused Mill | /TC10 |
| Radienfräser | BallNose Mill | /TC11 |
| Kugelpopfräser | Lollipop Mill | /TC12 |
| Konischer Fräser | Conic Nose Mill | /TC13 |
| Konischer Radiusfräser | Conic Nose Ball Mill | /TC14 |
| Senkfräser | Spot Face Mill | /TC15 |
| Bohren von konischer Senkung | Countersink Drill | /TC16 |
| Senkbohrer | Counterboring Mill | /TC17 |
| Radiusfräser | Corner Rounding Mill | /TC18 |
| Fasenfräser | Chamfer Mill | /TC19 |
| Umgekehrter Fasenfräser | Reverse Chamfer Mill | /TC20 |
| Doppelter Fasenfräser | Double Chamfer Mill | /TC21 |
| Scheibenfräser | Disc Mill | /TC22 |
| T-Nut-Rundungsfräser | Radiused Staggered Teeth Mill | /TC23 |
| Hochvorschubfräser | High Feed Face Mill | /TC24 |
| Reibahle | Constant Reamer | /TC25 |
| Ausdrehwerkzeug | Boring Bar | /TC26 |
| Gewinde | Tap | /TC27 |

| | | |
|--------------------|----------------------|-------|
| Rückwärtssenker | Back Spot Face Mill | /TC28 |
| Innengewindefräser | Internal Thread Mill | /TC29 |
| Kugelsonde | BallTouch | /TC30 |
| Aussendrehmeissel | External Turn | /TC31 |
| Innendrehmeissel | Internal Turn | /TC32 |
| Aussennutmeissel | External Groove | /TC33 |
| Innennutmeissel | Internal Groove | /TC34 |
| Radialnutmeissel | Frontal Groove | /TC35 |
| Aussengewinde | External Thread | /TC36 |
| Innengewinde | Internal Thread | /TC37 |
| Außengewindefräser | External Thread Mill | /TC38 |
| Ovalerfräser | Oval Mill | /TC40 |
| Linsenfräser | Lens Mill | /TC41 |
| | Ignore | /TC00 |

WinTool classifications mapped to /TC00 are ignored. This means that tools assigned to this classification are not transferred to TopSolid'Cam. This is useful for measurement equipment, fixtures, etc.

Cutting Conditions

As of TopSolid 7.11 SP12 *WinTool* has a plugin that can be bought separately (Missler license 3711). With this plugin, cutting Conditions can be imported directly from *WinTool* just by a click of a button on the Cutting Conditions Window in TopSolid:



To enable import of cutting conditions you will have to copy the file **WinToolAG.WTTopSolidCAM.Plugin.dll** from the installation folder of the interface to the **bin** folder of your TopSolid installation.

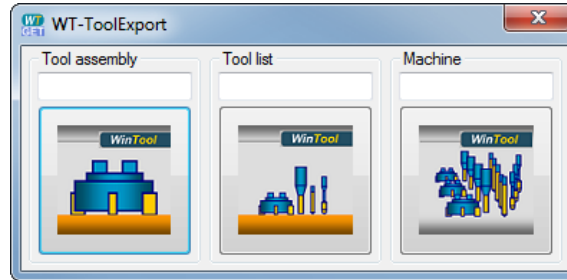
Importing Tool Assemblies

Note: The "TopSolid Machining" library must be in the PDM.


Open a machining project. Start the import by clicking on the WT-GET button.

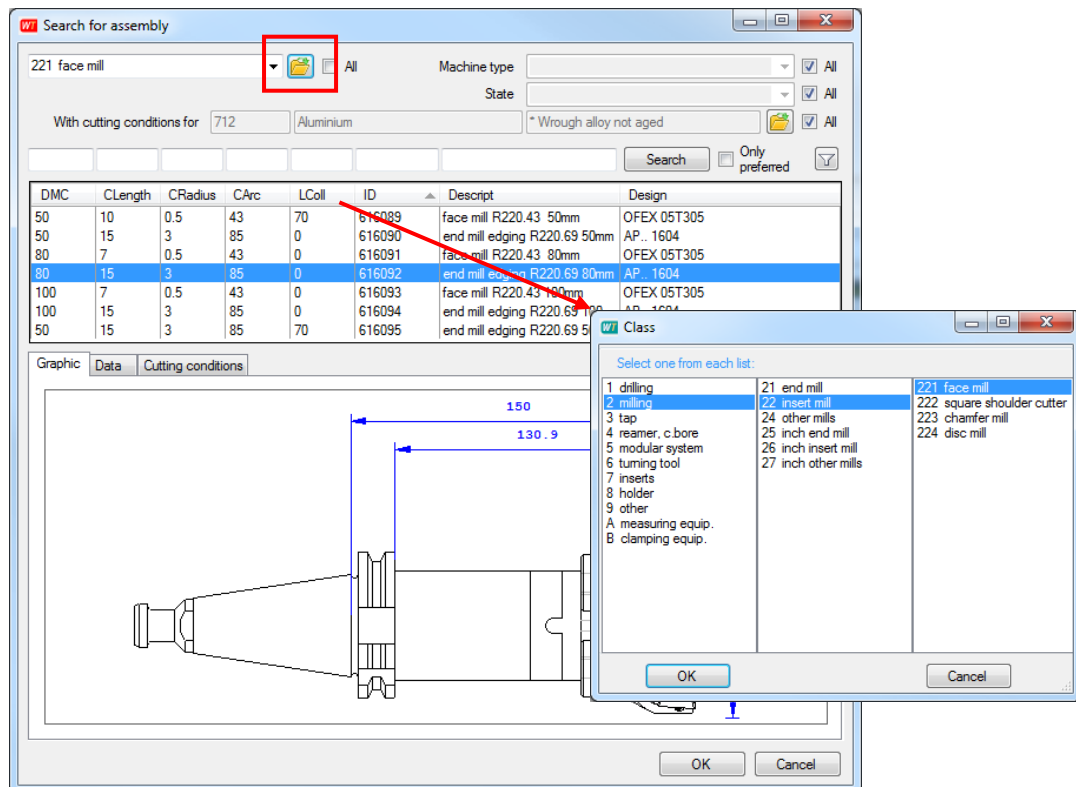


The following WT-ToolExport menu will open:

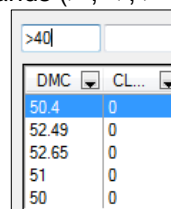



Select the icon for tool assembly to import tools individually or for tool list to load an existing *WinTool* tool list. If you know the tool assembly ID or tool list name, you can fill in the value and hit enter on your keyboard.

The tools will immediately be transferred. Click on  to open the tool classification tree. Select and highlight the desired tool.



There are filters available for machine type, tool data release state, cutting conditions for different materials, and preferred tools. You can also enter commands (> , < , >= , <=) to filter a list of tools:



The function  turns on combo box selection for the tool values:

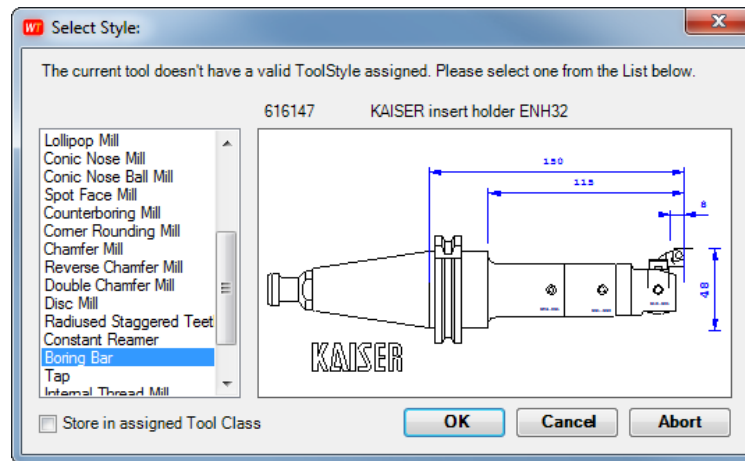
| DMC | CL... | CR... | CArc | LColl | ID | Descript | Design |
|-------|-------|-------|------|-------|--------|-------------------------|----------------------|
| 50.4 | 0 | 0 | 0 | 0 | 500057 | BARRA MICROMÉTRICA Ø... | |
| 22.4 | 0 | 0 | 180 | 70 | 500058 | BMA-003-Ø20-15,5 | Inserts CC73-0602??N |
| 36.55 | 0 | 0 | 180 | 51 | 500062 | CPM-001-C/ Ø36,55 | Inserts CC73-0602??N |

You can review detailed tool data in the folder tabs Graphic, Data, and Cutting conditions:

| | | |
|--|------|--------------------|
| Graphic | Data | Cutting conditions |
| Diameter (D) 50.4 Dia step 1 (Da) 0 Collision Dia (Dx) 0 | | |

If no TopSolid'Cam tool type has been previously assigned to the selected *WinTool* classification of the tool assembly, you must do it now.

This will map the *WinTool* classification to the TopSolid'Cam tool type. Select the correct TopSolid'Cam tool type from the selection list.



If you select "Ignore" to assign to a tool classification, the tool assemblies in this classification will not be transferred at all. This is useful for data that must not be transferred to TopSolid'Cam, e.g. measuring equipment.

The tool assemblies are created in a library called "WinTool Tools". A reference to this library is added automatically in the currently open machining project.

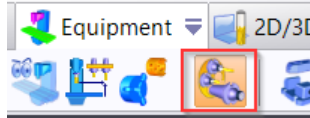
Corner Radius

As of WT-TopSolidCAM-Interface 1.4.3 it is possible to set the corner radius of the tool to "0" in WinTool. The Interface will automatically import it as "0.001" into TopSolid as it is the minimum requirement for a correct import.

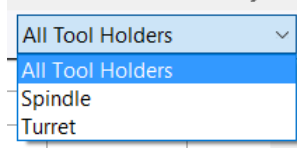
Assigning Tool Assemblies to a Pocket

Tool assemblies must be assigned to a pocket before they can be used in an operation. This can be achieved via the tool selection in the operation definition or the tool manager.

Open the tool manager:



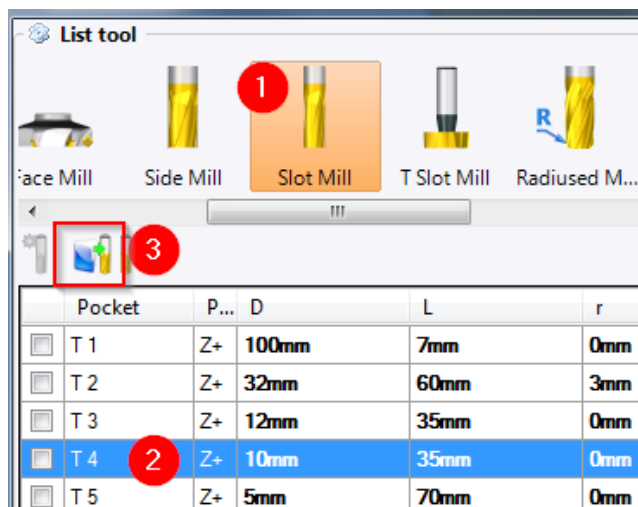
If you are using a mill-turn machine, you can filter the type of pockets displayed in the list:



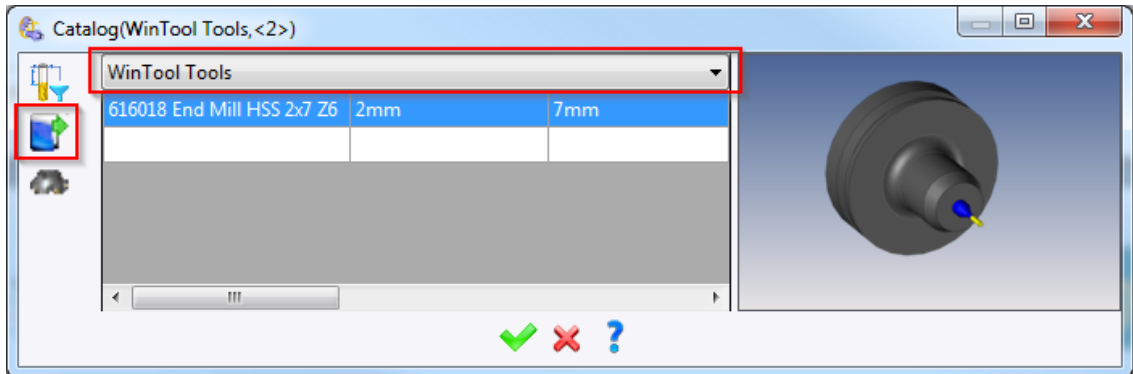
The pocket list is now displayed.

1. Select the tool type of the tool assembly you would like to assign to the pocket
2. Select the pocket where the tool assembly will be placed
Note: Each turret pocket has three pocket axis (Z+/X+/Z-).
 When importing a turning tool, select the correct one according to the turret type. X+ is the most frequently used.
3. Click on the "Import from catalog" button

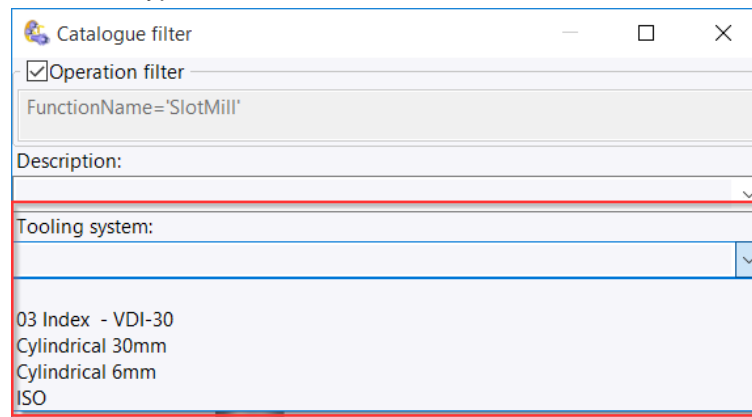
| Pocket | Pocket Axis |
|--------------------------------|-------------|
| <input type="checkbox"/> T 1.1 | Z+ |
| <input type="checkbox"/> T 1.2 | X+ |
| <input type="checkbox"/> T 1.3 | Z- |



In the next window, if the "WinTool Tools" library is not active, click on the "Tools Library" button on the left side and select "WinTool Tools" from the dropdown list.



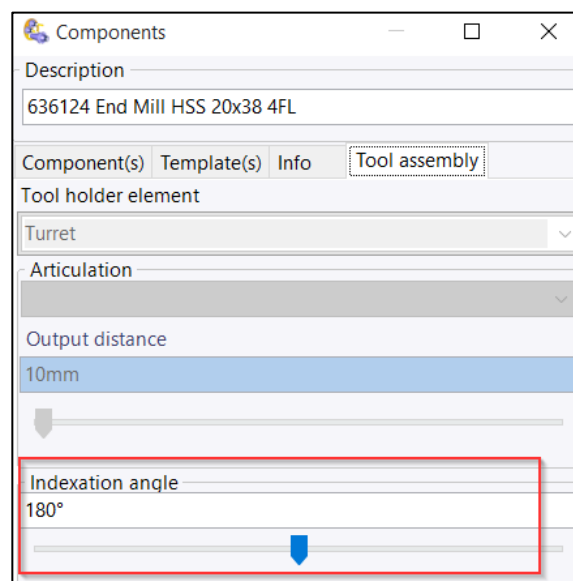
Note: In the "Catalog filter" window, you can use the "Tooling system" filter to view all tool assemblies on the selected WinTool machine type:



When you have found the tool assembly in the list, double-click to add it to the pocket.

Turning Tool Assembly Indexation Angle

When importing a turning tool assembly, you can change the indexation angle to change the orientation of the tool assembly on the turret. Double click on the tool assembly and go to the "Tool assembly" tab. Change the angle until the tool assembly is correctly placed:



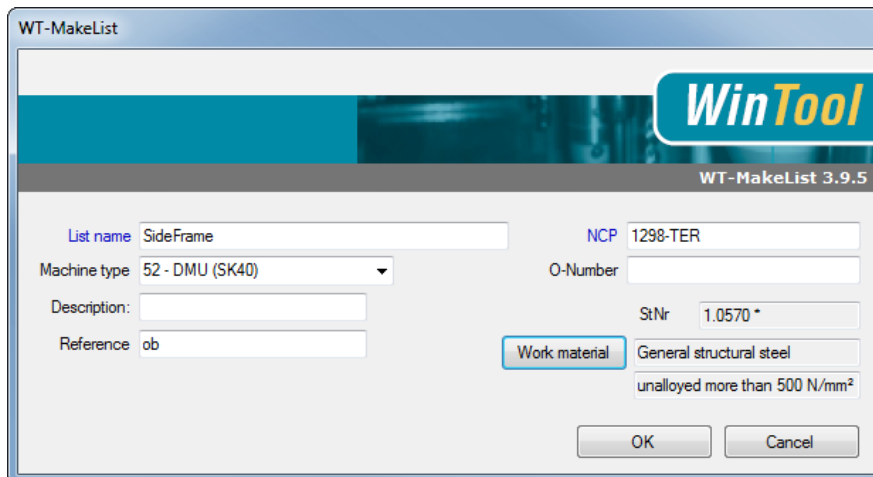
Export Tool List To *WinTool*

When you have finished the NC program, the list of all the tools used in the TopSolid'Cam project must be stored back to *WinTool*. This will allow the next person in the production process to continue with the job.

Start the export by clicking on the WT-PUT button.



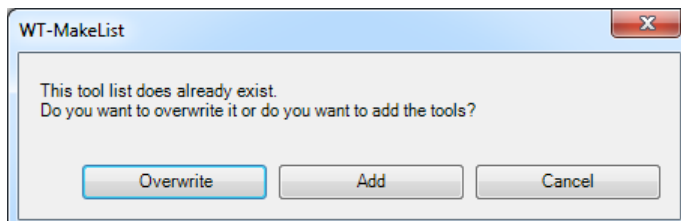
Edit the tool list header information:



The WT-MakeList dialog box (version 3.9.5) is shown. It features a header with the WinTool logo. The main area contains several input fields: 'List name' (SideFrame), 'Machine type' (52 - DMU (SK40)), 'Description' (empty), 'Reference' (ob), 'NCP' (1298-TER), 'O-Number' (empty), 'StNr' (1.0570 *), and 'Work material' (General structural steel, unalloyed more than 500 N/mm²). There are 'OK' and 'Cancel' buttons at the bottom right.

Select "OK" to store the information in the *WinTool* database.

If a tool list with the same List Name already exists in *WinTool* the following dialog box appears:



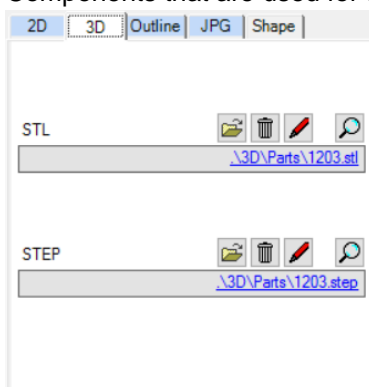
The WT-MakeList dialog box shows a warning message: "This tool list does already exist. Do you want to overwrite it or do you want to add the tools?". There are three buttons: 'Overwrite', 'Add', and 'Cancel'.

Preparing Tool Data in WinTool

For the WT-TopSolidCam-Interface to work properly *WinTool* component and assembly data must be recorded correctly. *WinTool* resellers offer training courses to make sure that you are building a high-quality tool database that is fit for engineering requirements.

However, the following points are prerequisite for the WT-TopSolidCam-Interface to work and will be described in detail in the chapters below:

- Each *WinTool* classification must be assigned to the corresponding TopSolidCam tool type.
- Each tool assembly must be linked to a *WinTool* Machine Type.
- Each tool assembly must have a "namegiving" and a "cutting" component.
- The tool geometry must be recorded in *WinTool* with the correct tool type and outline (for details please refer to the *WinTool* Professional documentation and the training course manuals).
- Components that are used for turning tools must have STEP or STL models linked in the folder 3D:



Grooving and Threading

Currently, for Grooving and Threading tools, some “corrections” are required so that these tools are imported and created correctly.

In the current WinTool version, some new outlines are being created in the area of Groove-Thread-Turning.

These are:

| | | |
|------------------------------|------------------------------|----|
| External holder – right hand | External insert - right hand | ER |
| External holder - left hand | External insert – left hand | EL |
| Internal holder – right hand | Internal insert – right hand | IR |
| Internal holder – left hand | Internal insert – left hand | IL |
| External holder - U-Type | External insert - U-Type | |
| Internal holder - U-Type | Internal insert - U-Type | |

Please see the outlines below and how to enter the data.

As far as holders as concerned, Li and Xi need to be measured from the reference point of the insert (zero-point).

As far as inserts are concerned, only the profile distances (Xi neg and Li neg) need to be corrected. These values depend on the thread pitch.

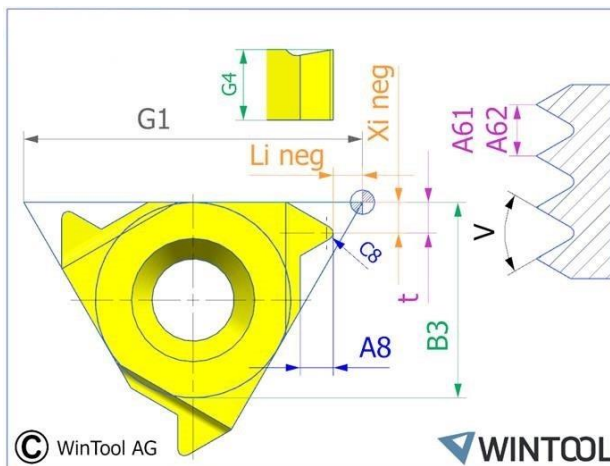
Important:

The parameters of the components need to be entered into WinTool as shown in the outlines below.

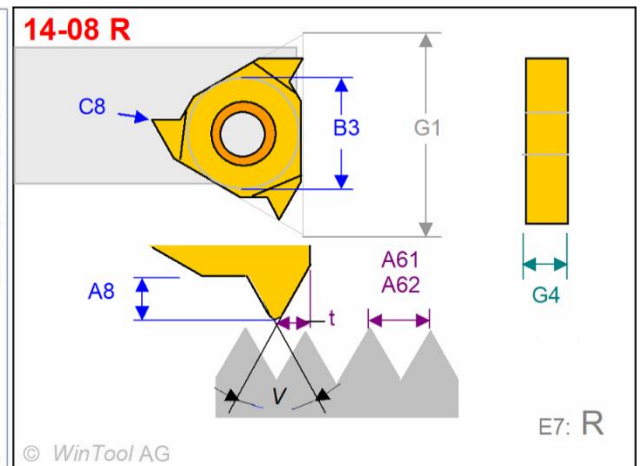
So, this is what the values should look like:

| | <u>Li</u> | <u>Xi</u> | |
|--------------|-----------|-----------|---|
| Holder right | pos | pos | |
| Insert right | neg | neg | |
| Holder left | pos | neg | (Holder right mirrored around the X-axis) |
| Insert left | neg | pos | (Insert right mirrored around the X-axis) |

Outline for Reference

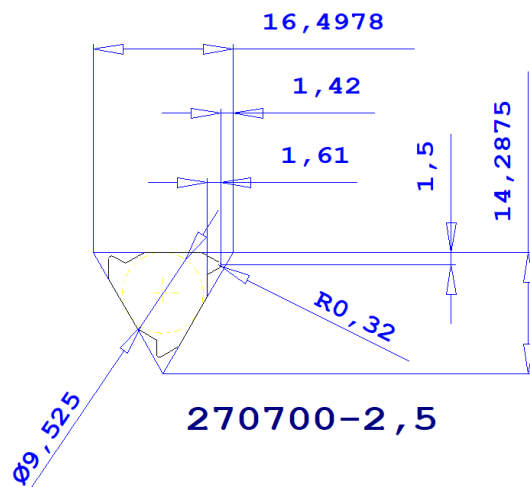


Actual Outline

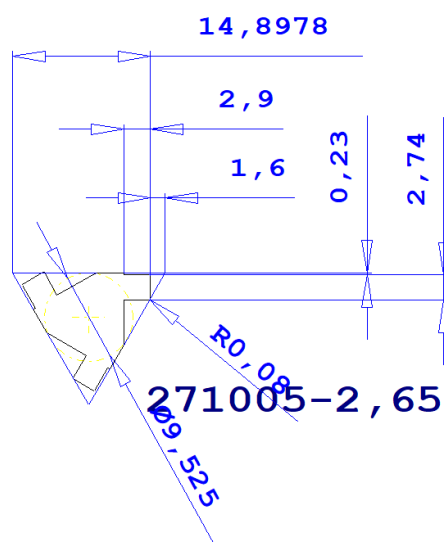


Please Use the Outline for Reference to create the parts in WinTool

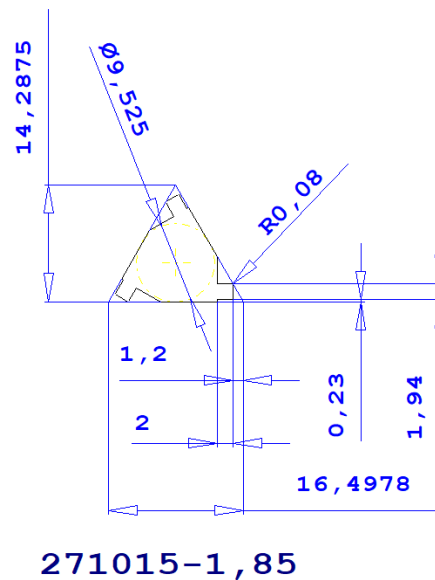
External insert right



External insert left

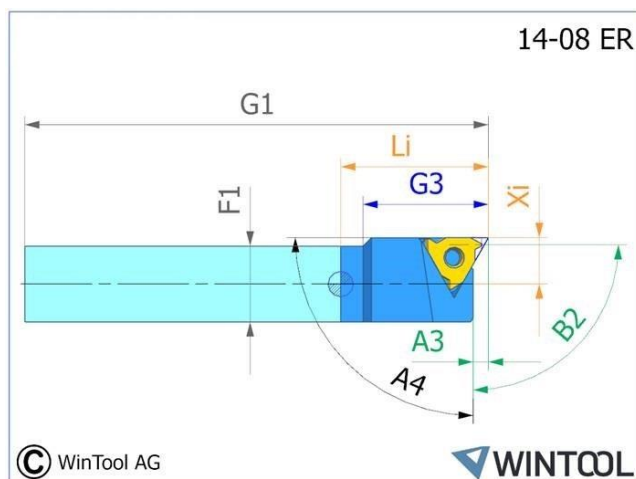


Internal insert right

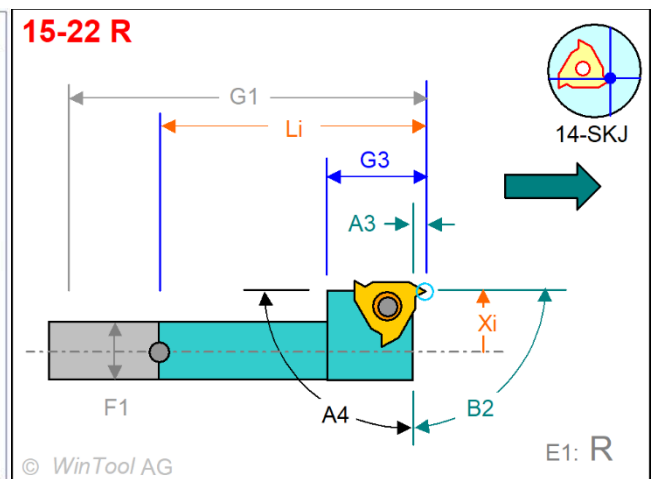


External holder right

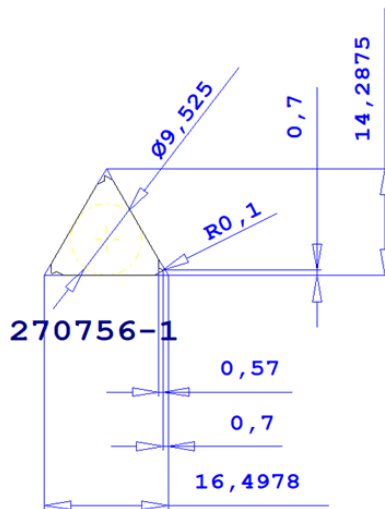
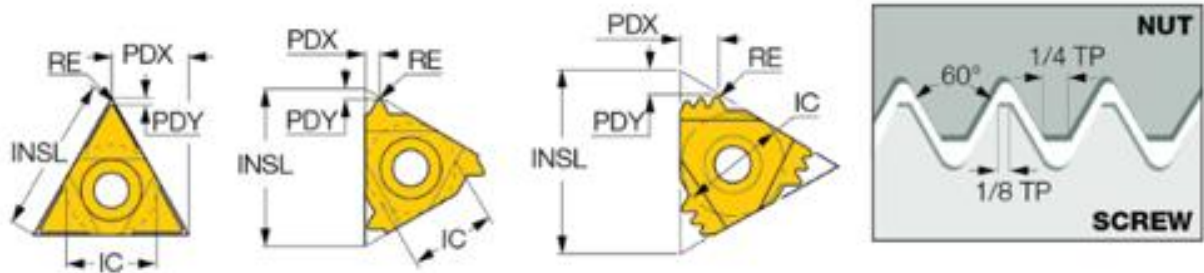
Outline for Reference



Actual Outline



Please Use the Outline for Reference to create the parts in WinTool

Internal insert left**U-Type**

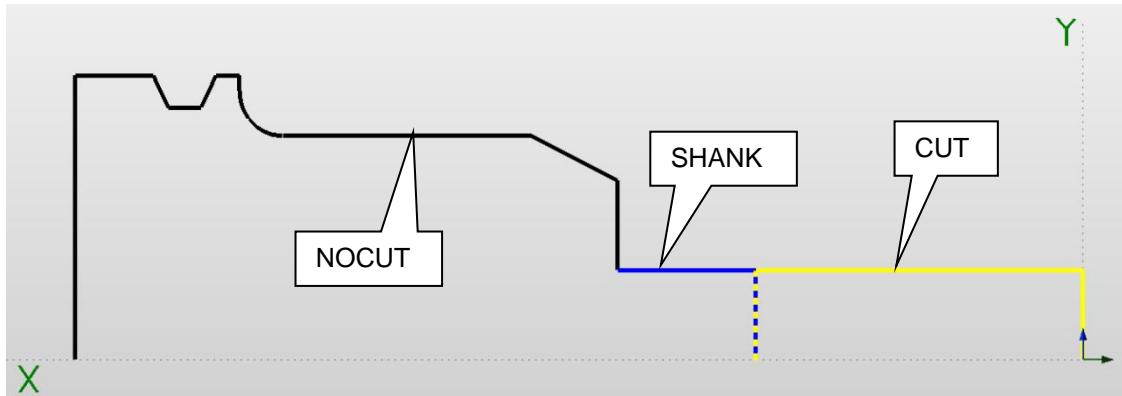
Custom Tool Assembly Contour

If a contour of a tool assembly cannot be created automatically with the Shape-Generator, you can create the DXF file manually.

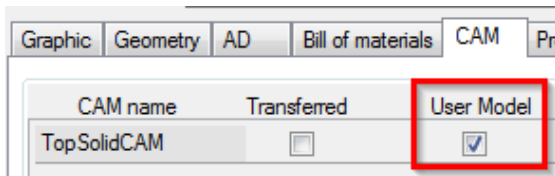
- Open the tool assembly and use the Shape-Generator button to create a DXF contour. Even if a tool is not supported fully by the Shape-Generator, it will create in most cases a contour-DXF, although not with all additional details of the custom tool - but with a lot of useful elements in place already: holder, extensions, reductions, shank, total length, correct layers, etc.



- Then modify it with Vector or any other DXF editor until it is exact. You must use the layers CUT, NOCUT, and SHANK:



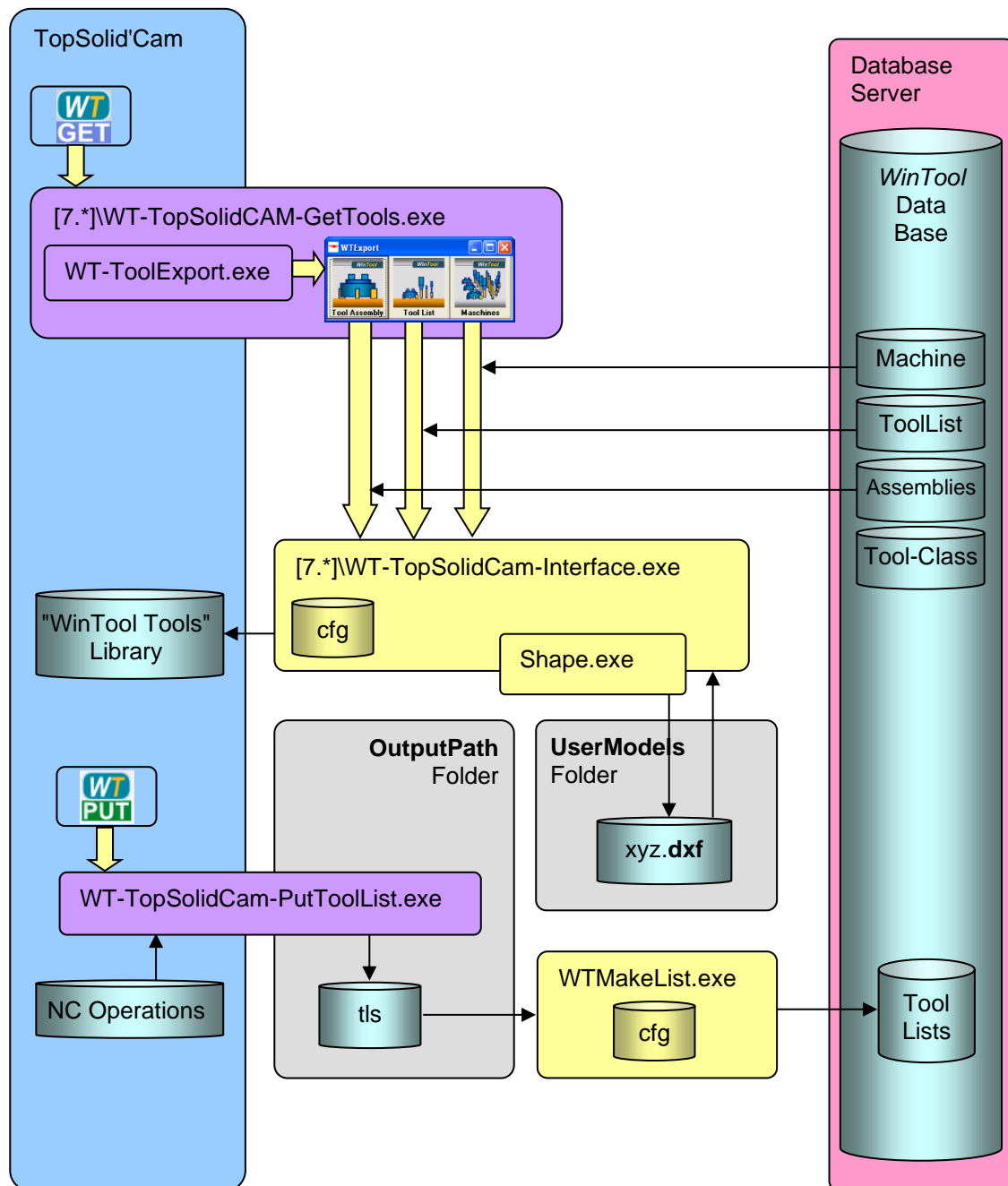
- The CUT layer is independent from the shank and holder closed contour. It **must** start and end at the X-axis ($Y=0$). Only the first and the last line of the contour are allowed to start/end at X-axis.
- The SHANK and NOCUT layer together must form a closed contour. It **must** start and end at the X-axis ($Y=0$). Only the first and the last line of the contour are allowed to start/end at X-axis.
- When you have finished the modification, you must save the file in the User Models Path with the name of the *WinTool* tool assembly Ident No (e.g. 616089.dxf). Already existing files must be overwritten.
- Assign the new DXF to the *WinTool* tool assembly: Check the box "User Model" in the tab "CAM" in the row containing "TopSolidCam". If it is missing, please activate TopSolidCam in "Settings" > "CAM settings" on the main *WinTool* screen.



Special Tool Assembly 3D Models

You can create a 3D tool assembly model for the holder components (do not include the cutter) if you place a STEP or STL file in the User Models Path. The model file must have the name of the *WinTool* tool assembly Ident No (e.g. 616089.step). You must also set the check the box "User Model" in the tab "CAM" of the tool assembly, see picture above.

Software Structure



History

1.4.6

- ✓ Compatible with WinTool 2020.3.1
- ✓ Compatible with TopSolid 7.15

1.4.5

- ✓ Compatible with WinTool 2020.2.1
- ✓ Compatible with TopSolid 7.14

1.4.4

- ✓ Compatible with WinTool 2019.1.2
- ✓ Support of new Tool type "Back Spot Face Mill"
- ✓ Support of new Tool type "External Thread Mill"
- ✓ Support of new Tool type "Barrel Mill"
- ✓ Support of new Tool type "Oval Mill"
- ✓ Support of new Tool type "Lens Mill"
- ✓ Added new configuration option:
 - ✓ "NCProgramNumber"
 - ✓ "ToolListDescription"
 - ✓ "ImportToolsToPocket"
- ✓ Fixed "special" characters that would appear sometimes when using PUT
- ✓ Tool "Ball Touch" is now imported correctly
- ✓ Added important information about Grooving-Threading-Turning Tools to the Manual

1.4.3

- ✓ Compatible with WinTool 2019.1
- ✓ Compatible with TopSolid 7.13
- ✓ Fixed zero Points that were wrongly Positioned for Imperial Milling Tools
- ✓ Fixed Import of Tool Type "Ball Touch" (/TC30)
- ✓ Fixed scaling of 3D Models from Imperial Tools
- ✓ Fixed General conversion of Tools
- ✓ Implemented new Licensing Model
- ✓ Made it possible to Import Tools with corner radius 0

1.4.2

- ✓ Compatible with WinTool 2018.2.1
- ✓ Cutting Conditions Plugin changes:
 - ✓ Added Ap/Ae Values to Operation Settings (Available in TopSolid 7.12 SP9)
- ✓ Fixed PUT where it wouldn't work sometimes with certain Configurations
- ✓ Fixed Import where Tools wouldn't be imported if they were already imported in older Projects
- ✓ Added STL Import for TopSolid 7.12
- ✓ Support of new Tool type "Gun Drill"
- ✓ Support of new Tool type "High Feed Face Mill"
- ✓ Support of new Tool type "Countersink Drill"

1.4.1

- ✓ Compatible with WinTool 2018.2
- ✓ Fixed Import of same Tool twice

1.4

- ✓ Compatible with WinTool 2018.1
- ✓ Compatible with TopSolid 7.11 and 7.12
- ✓ WinTool MakeList changes:
 - ✓ Machine name is now being exported and if available in WinTool automatically selected
 - ✓ Project name is now automatically the Tool List name
- ✓ Corrected conversion of Inch and Metric tools when imported to a different unit system
- ✓ Made T-Number and ToolID configurable
- ✓ OldName is now imported in the "Comment" field
- ✓ Fixed Insert of Type T
- ✓ Added plugin for Cutting Conditions

1.3.2

- ✓ Corrected error when importing turning tools in Versions above TopSolid'Cam 7.11.300.0

1.3.1

- ✓ Corrected error when importing tools in TopSolid'Cam 7.11
- ✓ Added shortcut to interface configuration window

1.3

- ✓ Compatible with TopSolid'Cam 7.11
- ✓ Added support for flat drill tools
- ✓ Corrected import of tool offset values for chamfer mill, face mill and corner rounding mill
- ✓ Adjusted import of chamfer mill to work with graving tool

1.2

- ✓ Compatible with TopSolid'Cam 7.10
- ✓ Added support for turning tools
- ✓ Added 3D model holder import for radial milling and drilling tools
- ✓ Importing WinTool machine type name to enable filtering in tool search window

1.1

- ✓ Compatible with TopSolid'Cam 7.8 and 7.9
- ✓ Importing tool assemblies into "WinTool Tools" library instead of current project
- ✓ Corrected center drill import
- ✓ Corrected pocket number extraction in tool list export