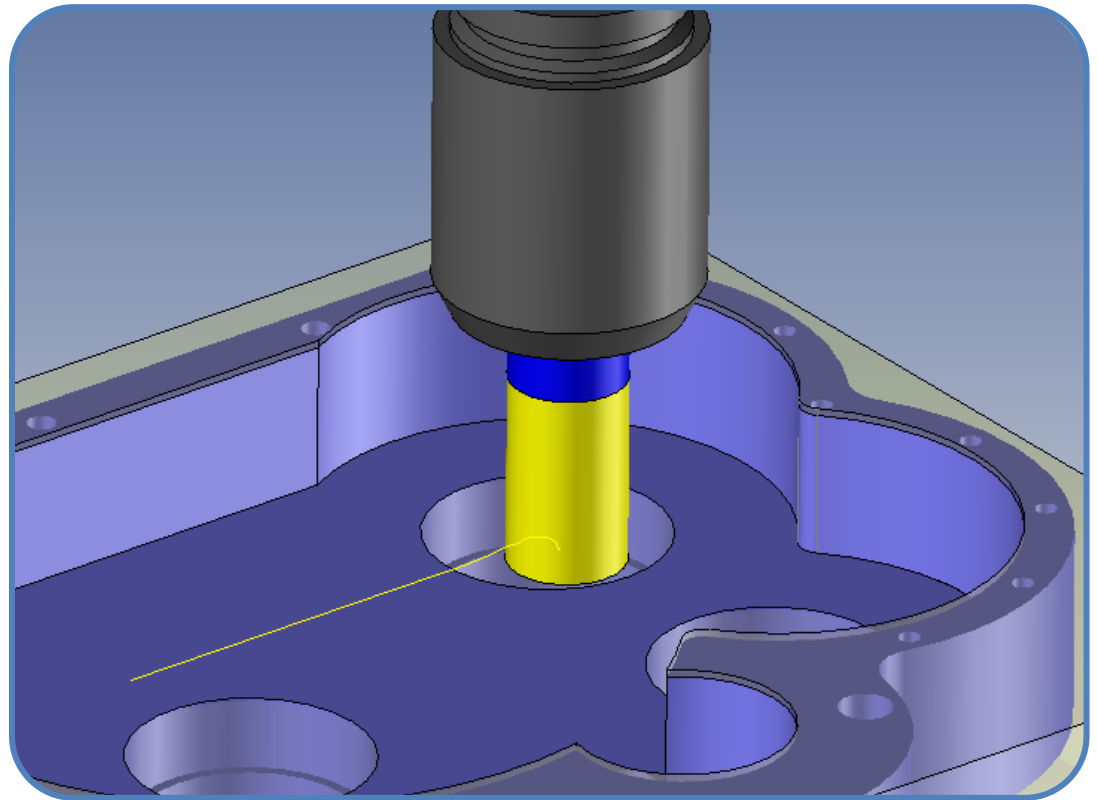


WT-TopSolidCam Interface



Manual

WinTool Interface 1.8.0 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* 2018 Professional or newer
- TopSolid'Cam 7.18 or 7.19

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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 2018 or newer. TopSolid'Cam 7.18 and 7.19 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

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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 10/11 is located in `C:\Users\Public\Documents\`

New Installation

Install *WinTool* Professional first, before installation of the WT-TopSolidCam-Interface.

WinTool must be started up at least once before the WT-TopSolidCam-Interface can be installed.

Start setup.exe

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

Update

Start setup.exe and install the interface.

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

Open the interface configuration via "Start" > "All Programs" > "WinTool" > "WT-TopSolidCam 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 Configuration"

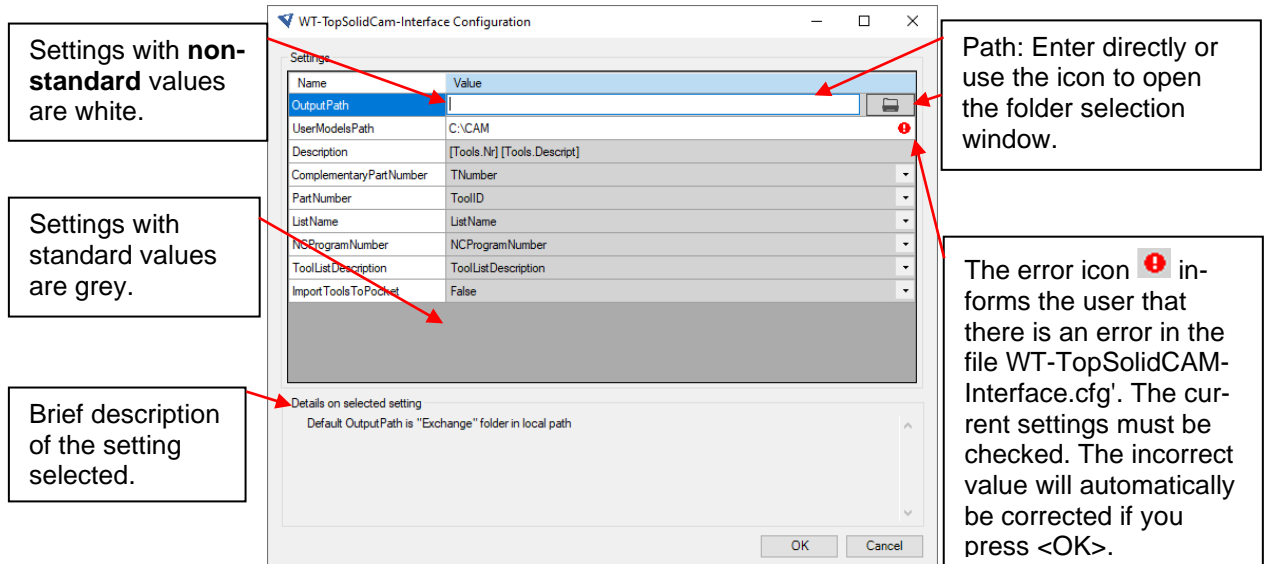


Figure 1 Instructions for the WT-TopSolidCam Interface

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

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.

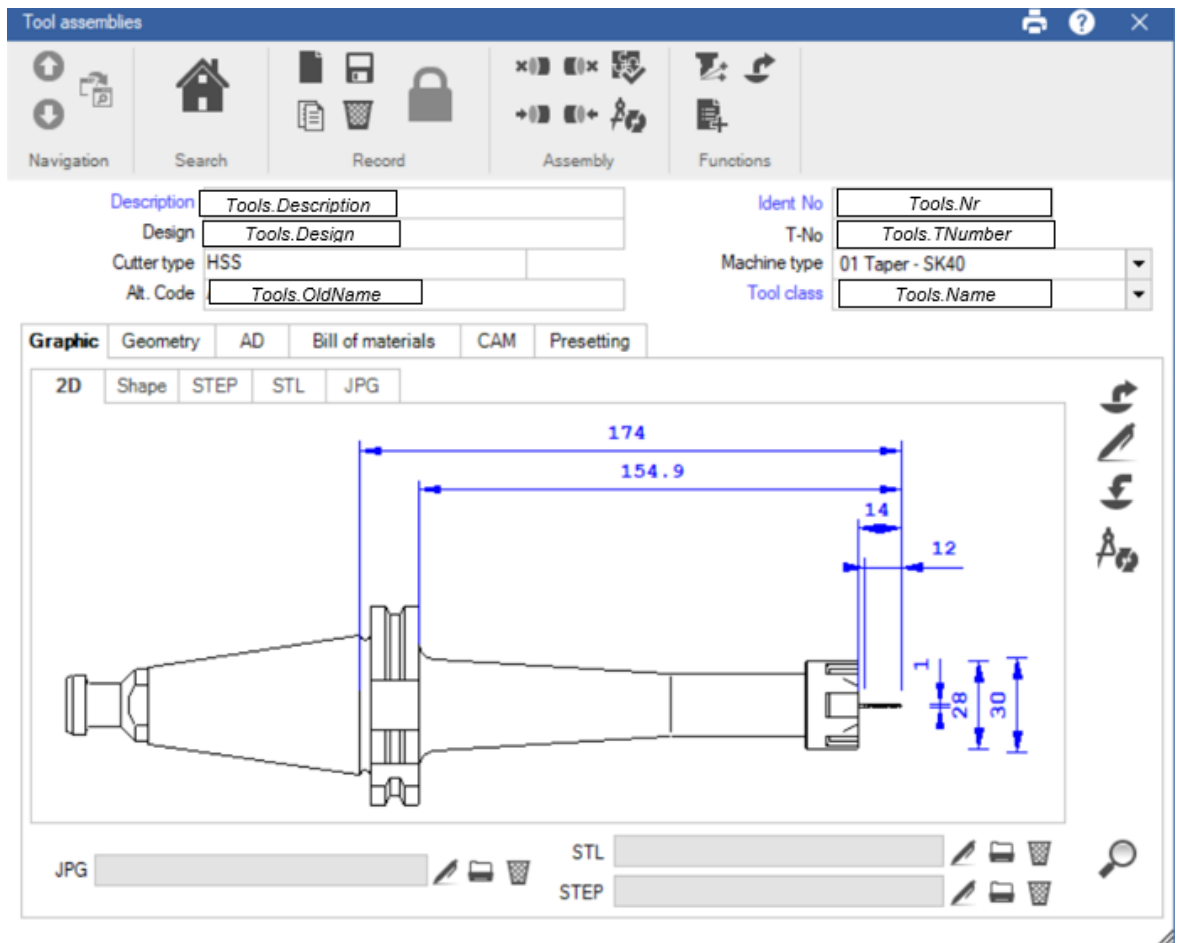
The default settings are:

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.

ListName / NCProgramNumber / ToolListDescription

Configurations for customization of Tool list export to WinTool with the PUT command. These configurations are defining which values to export for the equivalent Tool List fields (WinTool). The options available for selection has the same naming as the Tool List fields, but they are equal to a specific TopSolid value. The mapping of those options is explained below:

Option name	TopSolid source
ListName	Machining name
NCProgramNumber	NC operation name
ToolListDescription	Machining description
Empty	

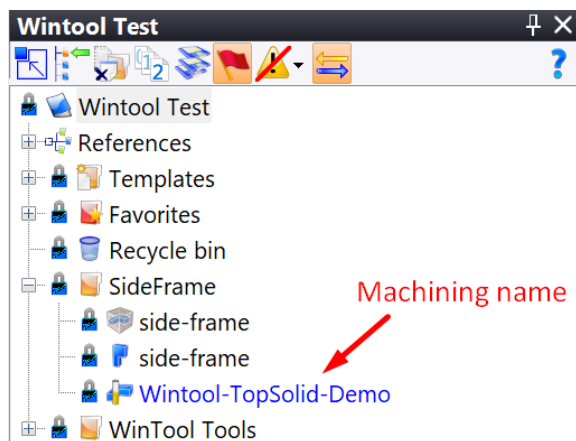


Figure 2 Machining name value position.

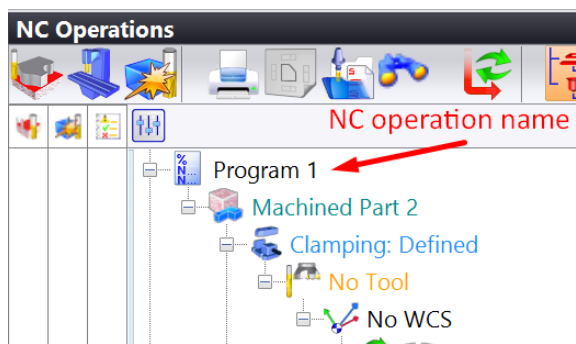


Figure 3 NC operation name value position.

Properties

Standard properties User properties

Name:
Wintool-TopSolid-Demo

Description: **Machining description**

Demo project

Figure 4 Machining description value position.

WT-MakeList

WinTool

WT-MakeList 3.11.0

List name: **Wintool-TopSolid-Demo** NCP: **Program 1**

Machine type: empty / don't change O-Number:

Description: **Demo project**

Reference: Admin Work material:

OK Cancel

Figure 5 Configuration values automatically added to PUT command execution window.

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.

Tool Manager

List tool

Spotting Drill Center Drill Twist Drill Flat Drill Gun Drill Countersin... Face Mill Side Mill Slot Mill T Slot Mill

Wintool All Tool Holders





Pocket	P...	D	L	r	Description
<input type="checkbox"/> 1		6.8mm	73mm	0mm	616004 Twist Drill HSS 6.8x69
<input type="checkbox"/> 2		100mm	7mm	0.5mm	616093 Face Mill 100x3 43° 7FL
<input type="checkbox"/> 3		63mm	40mm	0mm	616100 Shell Mill HSS 63x40 8FL
<input type="checkbox"/> 4		100mm	4mm	0mm	616102 Disc Milling Cutter 100x4 6FL
<input type="checkbox"/> 5		32mm	10mm	0mm	616101 T-Slot End Mill HSS 32x10 6FL
<input type="checkbox"/> 6		32mm	15mm	3mm	616097 Square Shoulder Mill 32x15 3FL
<input type="checkbox"/> 7		10mm	22mm	5mm	616040 Ball Nose End Mill HSS 10x22 2FL
<input type="checkbox"/> 8		4mm	12mm	0mm	616103 Spot Drill HSS 4x12 130°
<input type="checkbox"/> 9		10mm	13mm	5mm	616122 Bull Nose End Mill HSS 10x13 R2 2FL
<input type="checkbox"/> 10		6.8mm	73mm	0mm	616004 Twist Drill HSS 6.8x69
<input type="checkbox"/> 11					
<input type="checkbox"/> 12					
<input type="checkbox"/> 13					
<input type="checkbox"/> 14					
<input type="checkbox"/> 15					
<input type="checkbox"/> 16					
<input type="checkbox"/> 17					
<input type="checkbox"/> 18					
<input type="checkbox"/> 19					
<input type="checkbox"/> 20					

✓ ✗ ?

Configure TopSolid'Cam

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

Before customizing

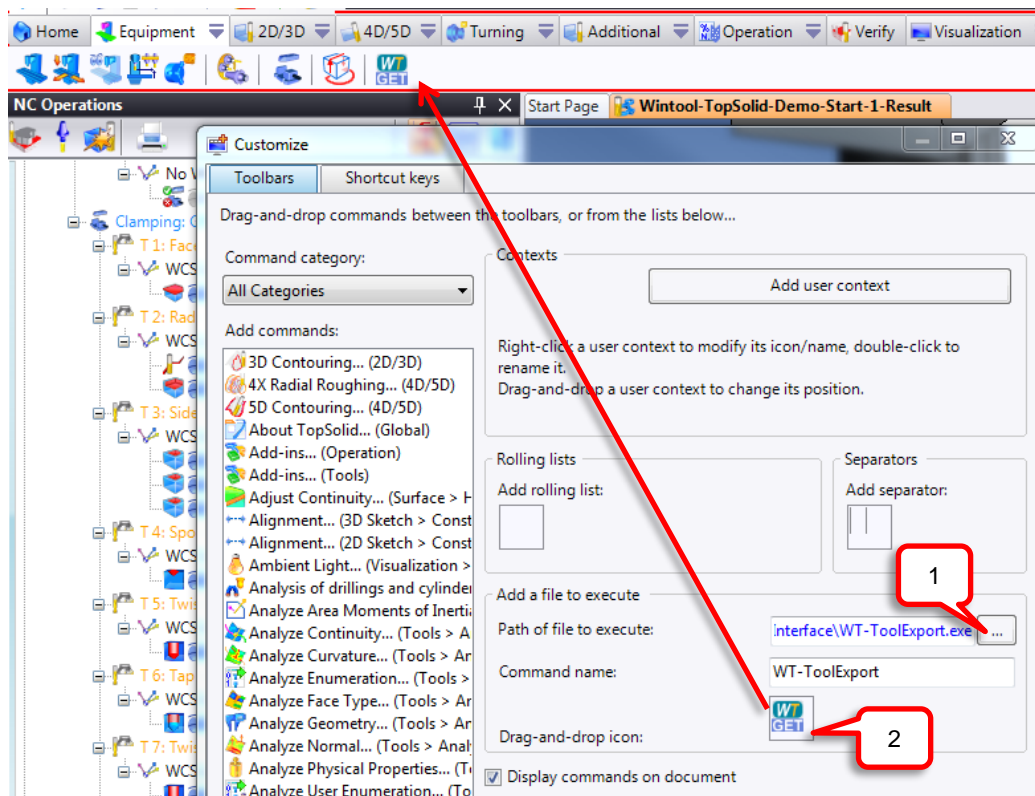
- Open a machining project in TopSolid'Cam
- Click on "Tools" tab and check which menu is selected. If "Default menu" is selected then select other menu because default menu is not customizable.
- If there is no other menu available, then create a new menu by clicking on "Tools" dropdown arrow  press click the "Menu"  button. Click on "Add" and create a menu with the name of your choice
- Now you can select the created Menu from the "Tools" tab
- Then select a tab by clicking on it, where you would like to add custom buttons, for example "Equipment Tab. Then click on "Tools" dropdown arrow only  and select the "Customize"  button.

Import Button

1. In "Add a file to execute", click on "..."
 - Go to the WT-TopSolidCam-Interface installation directory and open the directory "7.18" or "7.19"
 - 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 "7.18" or "7.19"
 - Select "WT-TopSolidCAM-PutToolList.exe"
2. Drag and Drop the "WT-PUT" icon into the toolbar "Equipment"

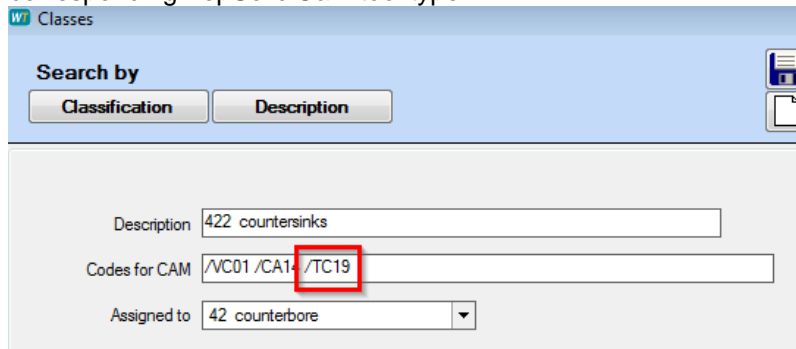


Supported TopSolid'Cam Tool Types

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.



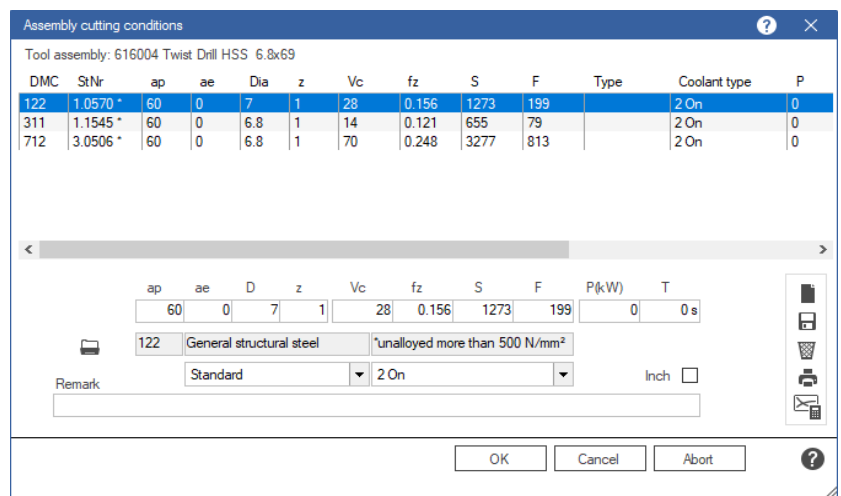
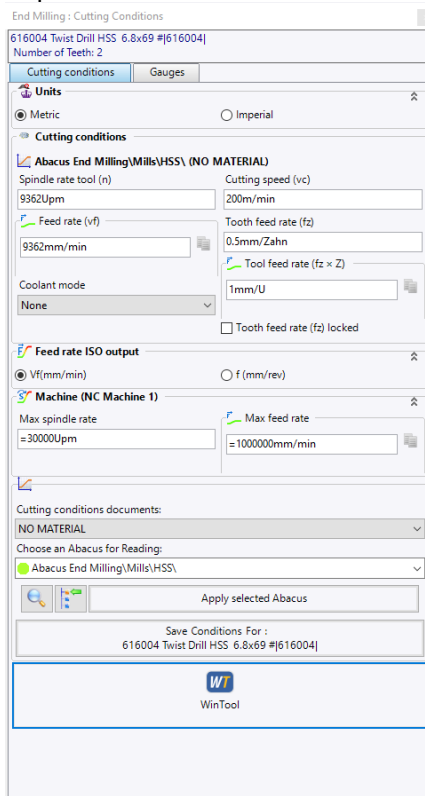
TopSolid'Cam Tooltype		WinTool Classification
Deutsch	English	
Anbohrer	Spotting Drill	/TC01
Zentrierbohrer	Center Drill	/TC02
Spiralbohrer	Twist Drill	/TC03
Flachbohrer	Flat Drill	/TC04
Tieflochbohrer	Gun Drill	/TC05
Planfräser	Face Mill	/TC06
Schaftfräser	Side Mill	/TC07
Langlochfräser	Slot Mill	/TC08
T-Nutfräser	T Slot Mill	/TC09
Eckradienfräser	Radiused Mill	/TC10
Radienfräser	BallNose Mill	/TC11
Kugelpopffräser	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

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.

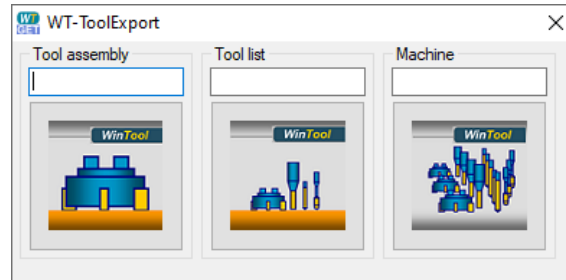
Importing Tool Assemblies

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

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



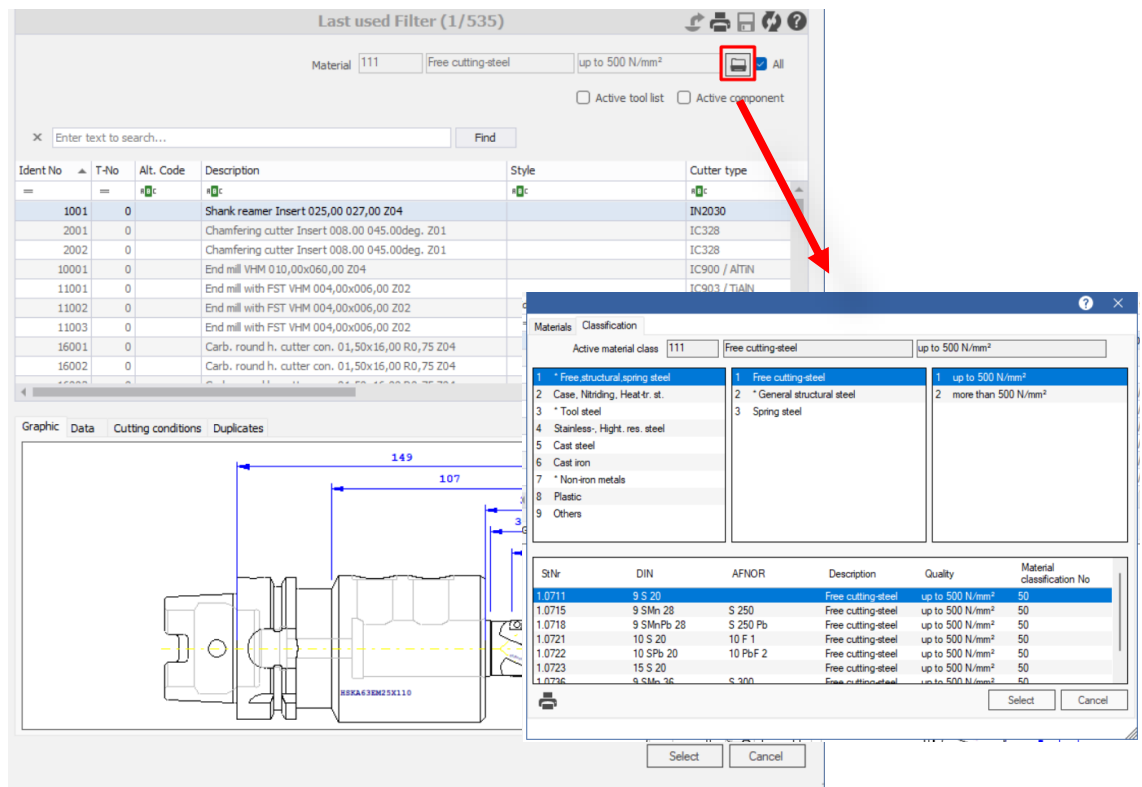
The following WT-ToolExport menu will open:




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 and 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.

When you mouse over a column header the function  will appear, this turns on combo box selection for the tool values:

Ident No	T-No	Alt. Code	Description	Style	Cutter type	Diameter	Length of Cut	Radius	Side An
--	------	-----------	-------------	-------	-------------	----------	---------------	--------	---------

The filter you chose will appear below, you can also edit the filter after.

× ☒ [Ident No from 1001 to 6021501] Edit Filter

You can review detailed tool data in the folder tabs Graphic, Data, Cutting conditions and also see if there are any Duplicates:

Graphic	Data	Cutting conditions	Duplicates
	Diameter (D) <input type="text" value="0,4219"/> Dia step 1 (Da) <input type="text" value="0"/> Collision Dia (Dx) <input type="text" value="2"/> Predrilling Dia (Dp) <input type="text" value="0"/> Shank Dia (Ds) <input type="text" value="0"/> Depth of CutRad (Xc) <input type="text" value="0,21095"/> Cutting width (B) <input type="text" value="0"/>	Length of Cut (Lc) <input type="text" value="3,9375"/> Length (La) <input type="text" value="0"/> Collision Length (Lx) <input type="text" value="4,15625"/> Length <input type="text" value="8,15625"/> Width <input type="text" value="0"/> Radius (r) <input type="text" value="0"/>	Side angle (s) <input type="text" value="0"/> Nose angle (v1) <input type="text" value="130"/> Stage 2 angle (v2) <input type="text" value="0"/> Stage 3 angle (v3) <input type="text" value="0"/> Pitch (p) <input type="text" value="0"/> Inclination (g) <input type="text" value="0"/>

Quantity	Item-No	Description	Style	Product code	L	D
1	1229	Twist Drill HSS .422 x 3.938		Product-1229		
1	1241	Pull Stud (Inch)	SK40 Mas BT40	Product-1241		
1	1230	Collet ER32, Inch	11/32 - 5/8 Inch	Product-1230		
1	1242	Collet Chuck BT40/ER32x4"		Product-1242		

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.

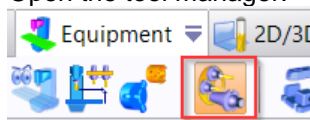
Corner Radius

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.

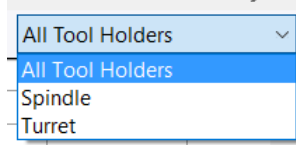
Assigning Tool Assemblies to a Pocket

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.

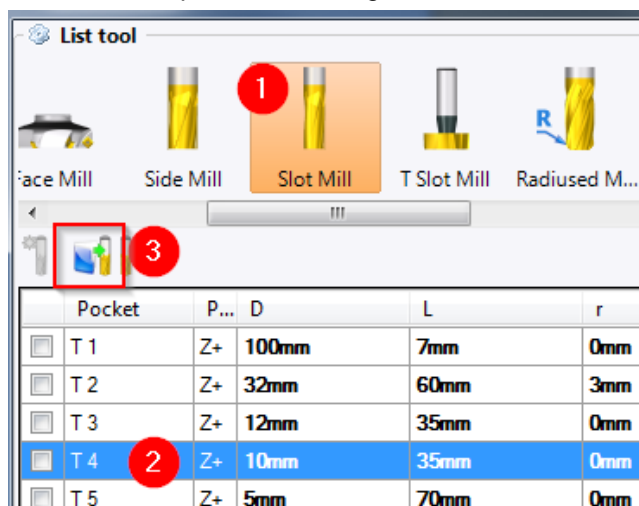
1. Select the tool type of the tool assembly you would like to assign to the pocket
2. Select the pocket where the tool assembly will be placed

Note: Each turret pocket has three pocket axis (Z+/X+/Z-).

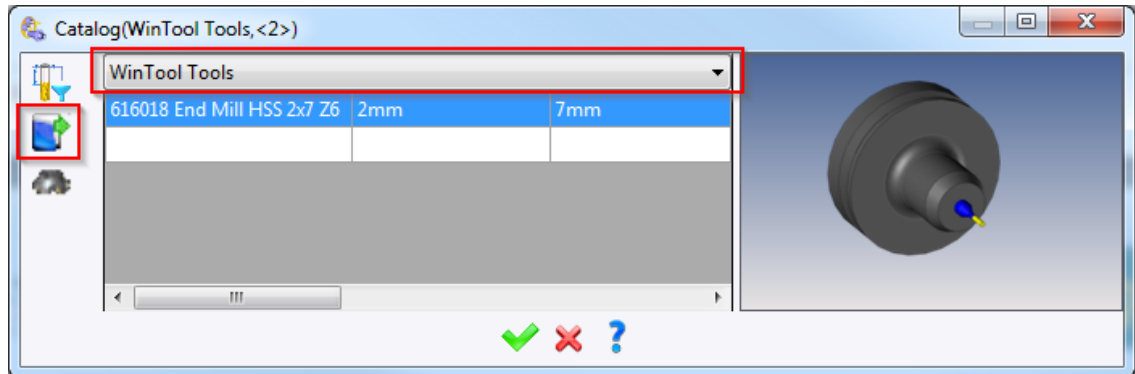
When importing a turning tool, select the correct one according to the turret type. X+ is the most frequently used.

3. Click on the "Import from catalog" button

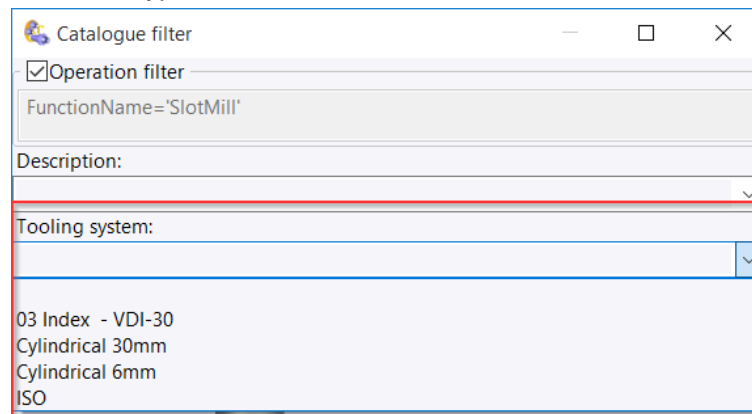
Pocket	Pocket Axis
<input type="checkbox"/> T 1.1	Z+
<input type="checkbox"/> T 1.2	X+
<input type="checkbox"/> T 1.3	Z-



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.



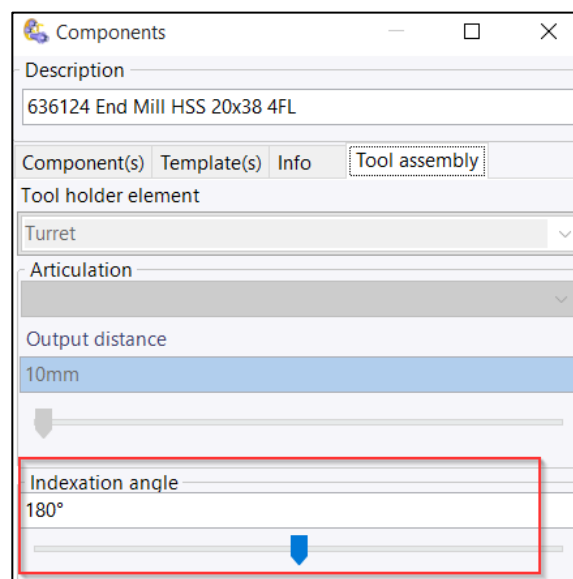
Note: In the "Catalog filter" window, you can use the "Tooling system" filter to view all tool assemblies on the selected WinTool machine type:



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:



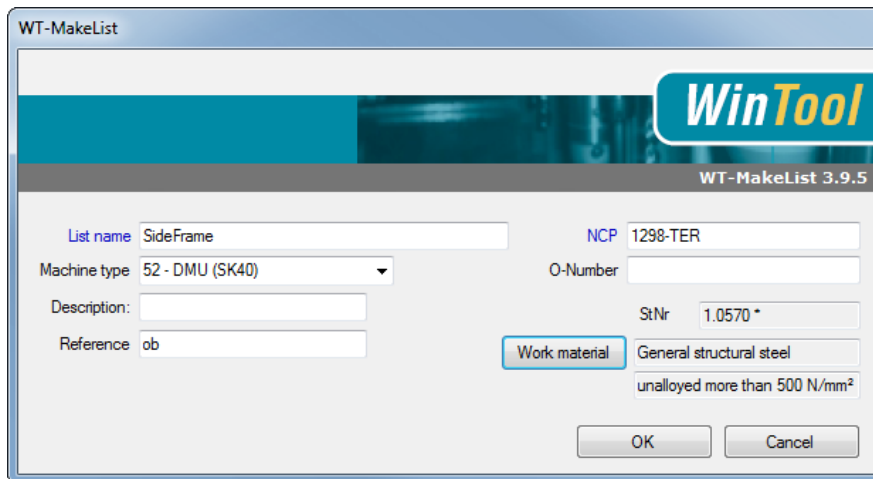
Export Tool List To *WinTool*

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.



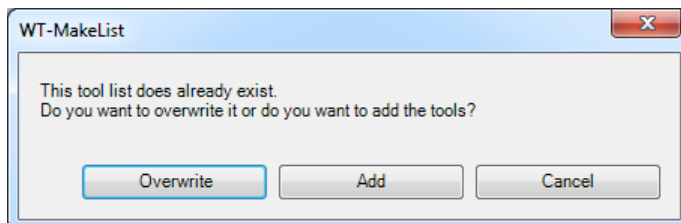
Edit the tool list header information:



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:



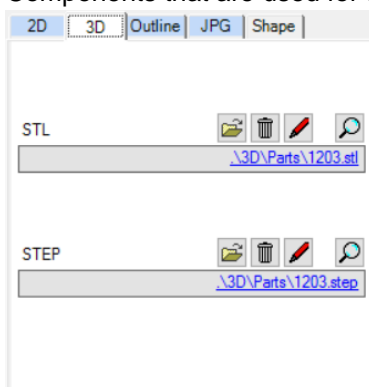
The WT-MakeList dialog box shows a warning message: "This tool list does already exist. Do you want to overwrite it or do you want to add the tools?". There are three buttons: 'Overwrite', 'Add', and 'Cancel'.

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.

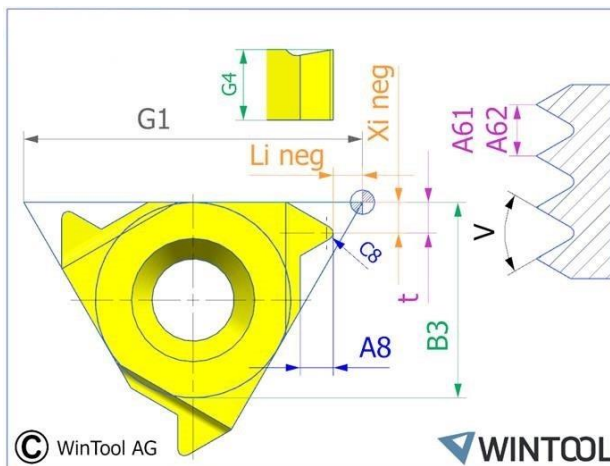
Important:

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

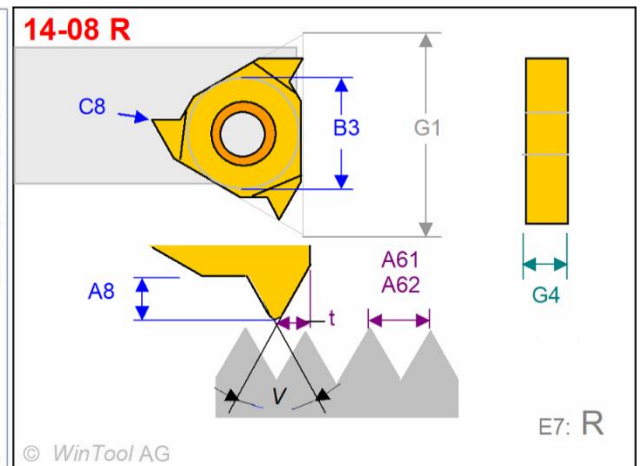
So, this is what the values should look like:

	<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

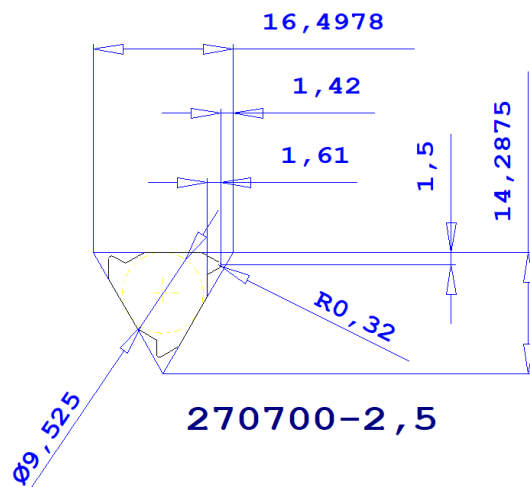


Actual Outline

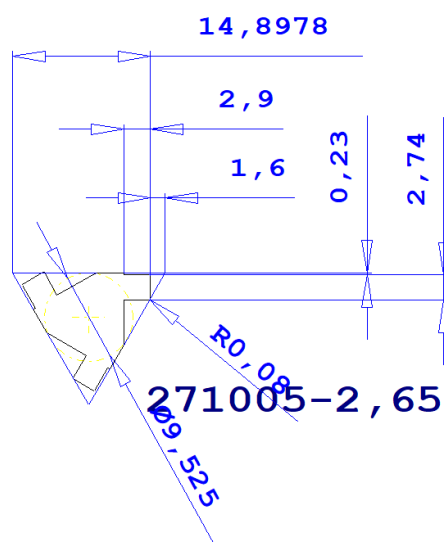


Please Use the Outline for Reference to create the parts in WinTool

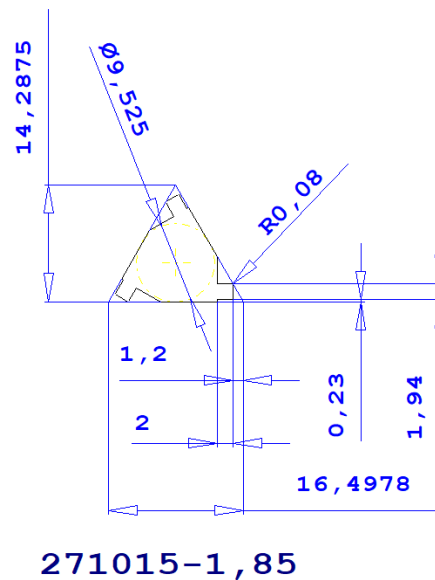
External insert right



External insert left

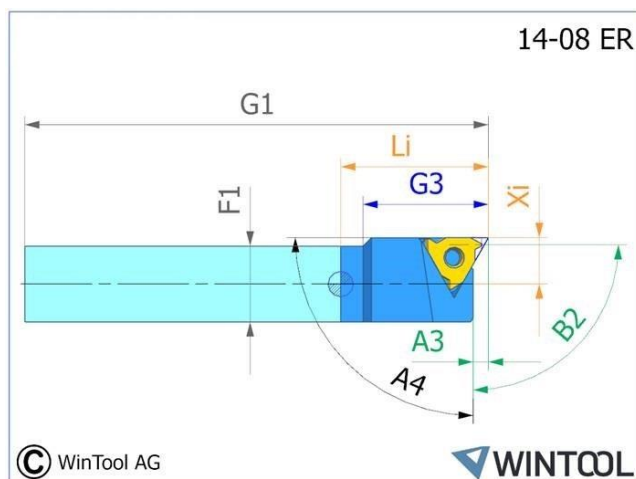


Internal insert right

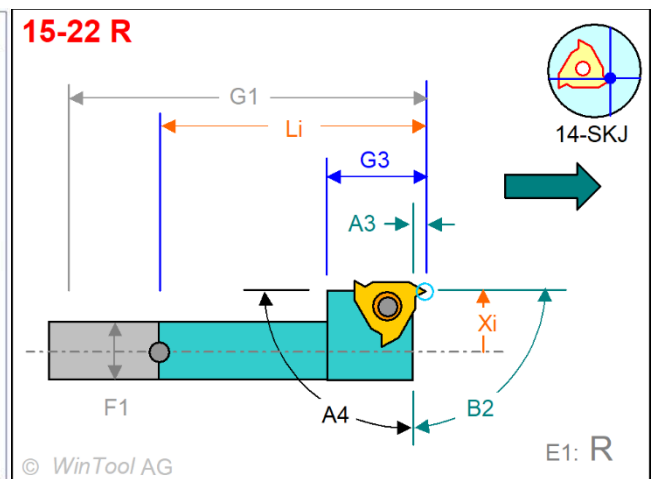


External holder right

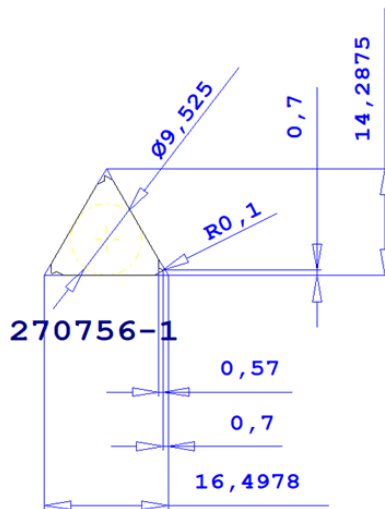
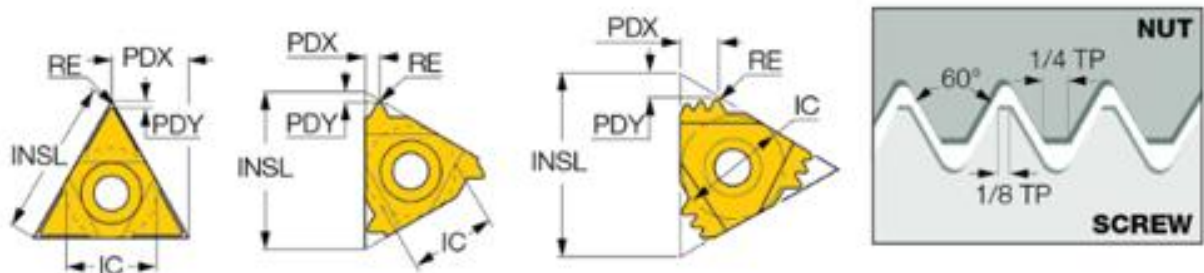
Outline for Reference



Actual Outline



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

Internal insert left**U-Type**

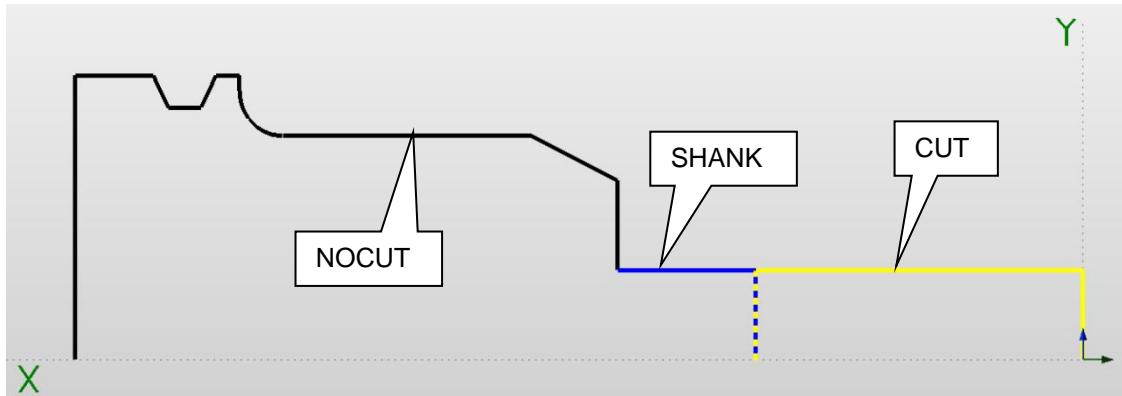
Custom Tool Assembly Contour

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

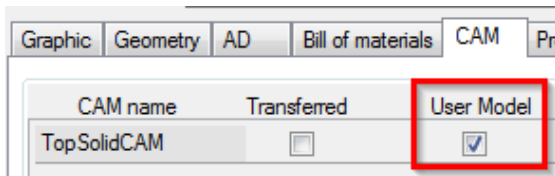
- Open the tool assembly and use the Shape-Generator button to create a DXF contour. Even if a tool is not supported fully by the Shape-Generator, it will create in most cases a contour-DXF, although not with all additional details of the custom tool - but with a lot of useful elements in place already: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

Important Note:

To create a 3D tool assembly model for the holder then all the components from BOM must be linked to a step file, otherwise the interface will use holder's shape contour to import the tool.