

Tooldatabase-Parameter

HyperMILL

Tool database for „Connected Manufacturing“

Which parameter do we need and why?

Background:

- „Connected Manufacturing“ is creating the „digital twin“ of the existing tool and connects them with each other
- Through this all tools can be localized and the needed data can be sent to the machine or presetting device

General:

- Toolassembly = Cutter + Baseholder
- If Hoffmann-Article-Numbers are maintained, the data can be automatically enriched
- Tools can be identified with „Name“ or „Tool-Nr.“

HyperMILL Tooldata

Cutter data - Geometry

- 1. Name: for a clearly identification of the cutter **and** the toolassembly (**required**)
- 2. Comment (Articlenumber): here you can put in the Hoffmann-Articlenumber of the **cutter**. With this number the information can be automatically enriched by importing the tool to CM (pictures, dimensions, materials, etc.)
- 3. Geometry: for defining the Diameter and the Length (without holder) of the tool (**required**)
- 4. Cutting length: with this field you can define the cutting length of the tool

Common	
1 Name	SF_16_VHM_MM
2 Comment	202545 16
Tool type	End Mill
Measurement system	Metric
Geometry	
3 Diameter	16
Length	92
Shank	
<input checked="" type="checkbox"/>	
Shank mode	parametric
Shank diameter	16
Chamfer definition	length
Chamfer length	0
Tip	
Tip length	36
4 Cutting length	36
Conical tip	<input type="checkbox"/>
Collar	<input type="checkbox"/>
Core diameter	0
Core height	0
Free tip geometry	<unavailable>
Top coupling	
Diameter	16
Minimal length	0
Maximal length	56

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Cutter data - Technology

- 1. Technology: here you can define the technology data like cutting edges or spindle orientation
- 2. Coolant: select cooling option for (automatic) transmission to the machine

The screenshot shows the HyperMILL software interface. The top panel is titled 'Technology' and contains a table with the following data:

Technology	
Cutter material	HSS
Cutting edges	3
Spindle orientation	Clockwise

The bottom panel is titled 'Coolant' and contains a table with the following data:

Usage	Spindle RP...	Feedrate XY	Axial feedrate	Reduced fee...	Cutting spe...	F/edge (fz)	Fz drill (f)
<Invariant>	2000	200	50	100	10	0.5	0
Coolant		Infeed width ...	Infeed leng...	Plunge angle	Max. angle ...		
1		0	0	2	15		

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Holder data

- 1. Name: for a clearly identification of the holder
- 2. Comment (Articlenumber): here you can put in the Hoffmann-Articlenumber of the **holder**. With this number the information can be automatically enriched by importing the tool to CM (pictures, dimensions, materials, etc.)
- 3. Coolant through: select the coolant through option of the holder here
- 4. Geometry: with his buttons you can load an existing holder geometry or create a new one

The screenshot shows the HyperMILL software interface for configuring tool data. The left panel is titled 'Common' and contains the following fields:

1	Name	FSF_D16_MM
2	Comment	300048 16
	Measurement system	Metric

The 'Technology' section includes:

Factor speed	1	
Factor feedrate	1	
Infeed width (ae) factor	1	
Infeed length (ap) factor	1	
Maximal spindle RPM	0	
Maximal feedrate	0	
3	Coolant through	Yes

The 'Couplings' section includes:

Top coupling	Adaptor
Class	HSK63
Gage point offset	0
Bottom coupling	Unknown

The 'Geometry' section includes:

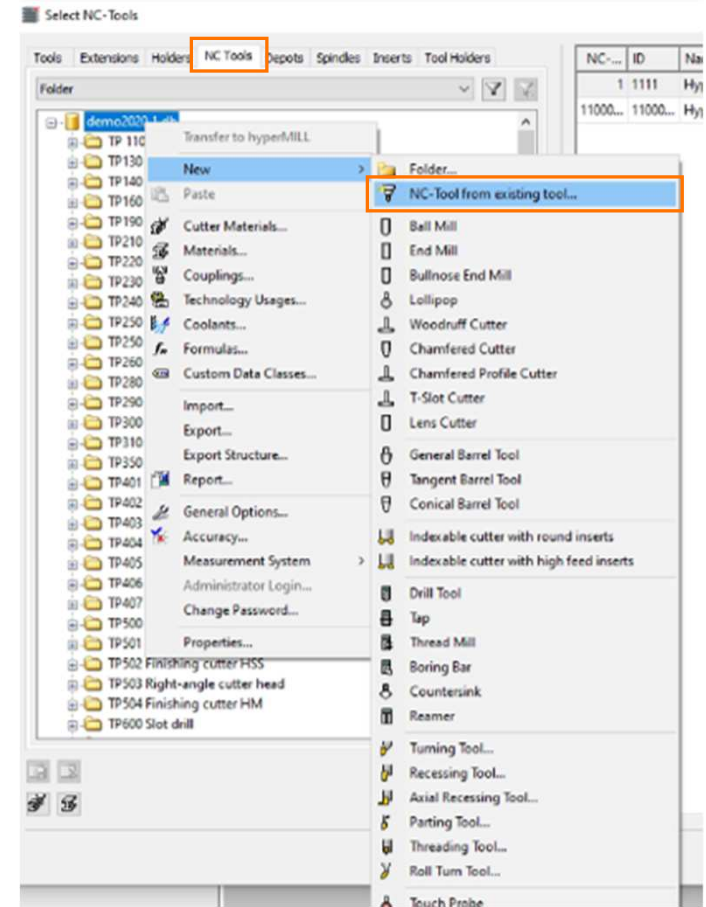
Default	Exact geometry
Variant 1	Exact geometry

The right panel shows a 3D model of the holder, which is a cylindrical component with a wider top section and a narrower bottom section. The model is rendered in a metallic gray color against a black background. At the bottom of the right panel, there are two small icons: a trash can and a refresh symbol.

HyperMILL Tooldata

Create new NC-Tool (Toolassembly)

- In tab „NC Tools“ you can choose New → NC-Tool from existing tool... to create a new Toolassembly from the existing components

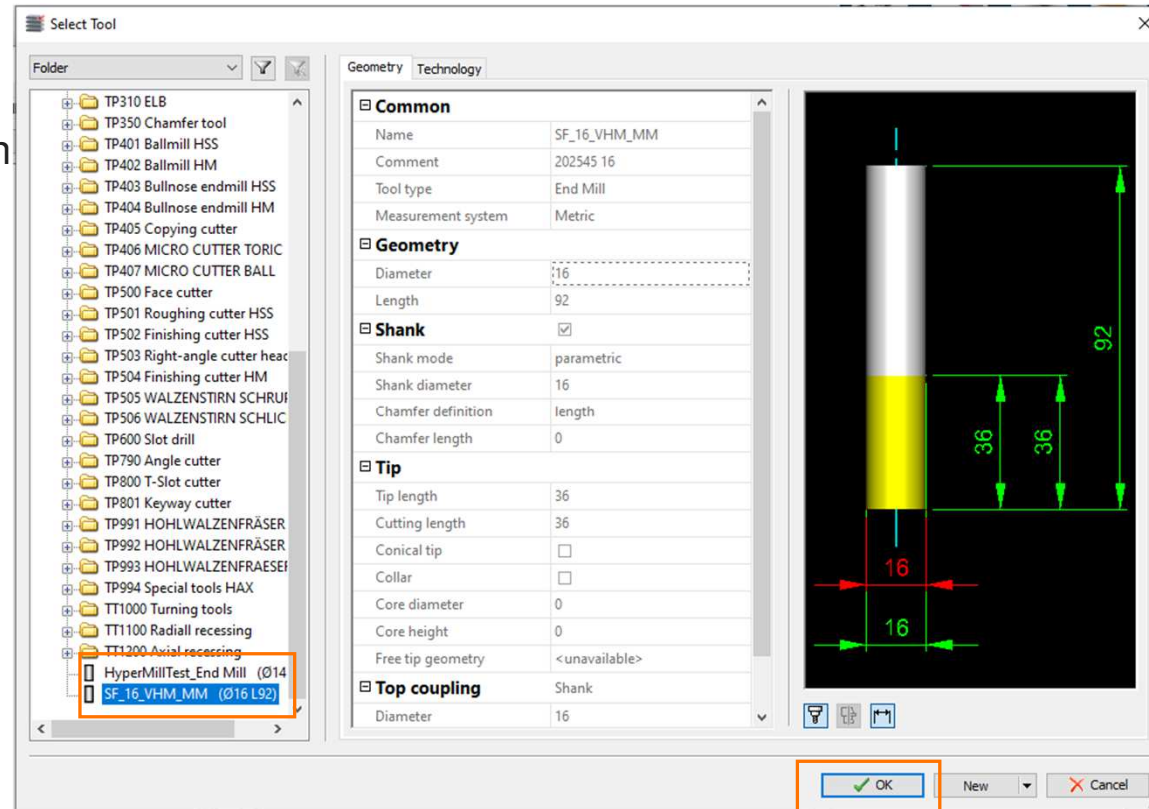


HyperMILL Tooldata

Create new NC-Tool (Toolassembly)

Choose cutter

- In window „Select Tool“ a cutter can be chosen from the database
- Confirm with „OK“



HyperMILL Tooldata

Create new NC-Tool (Toolassembly)

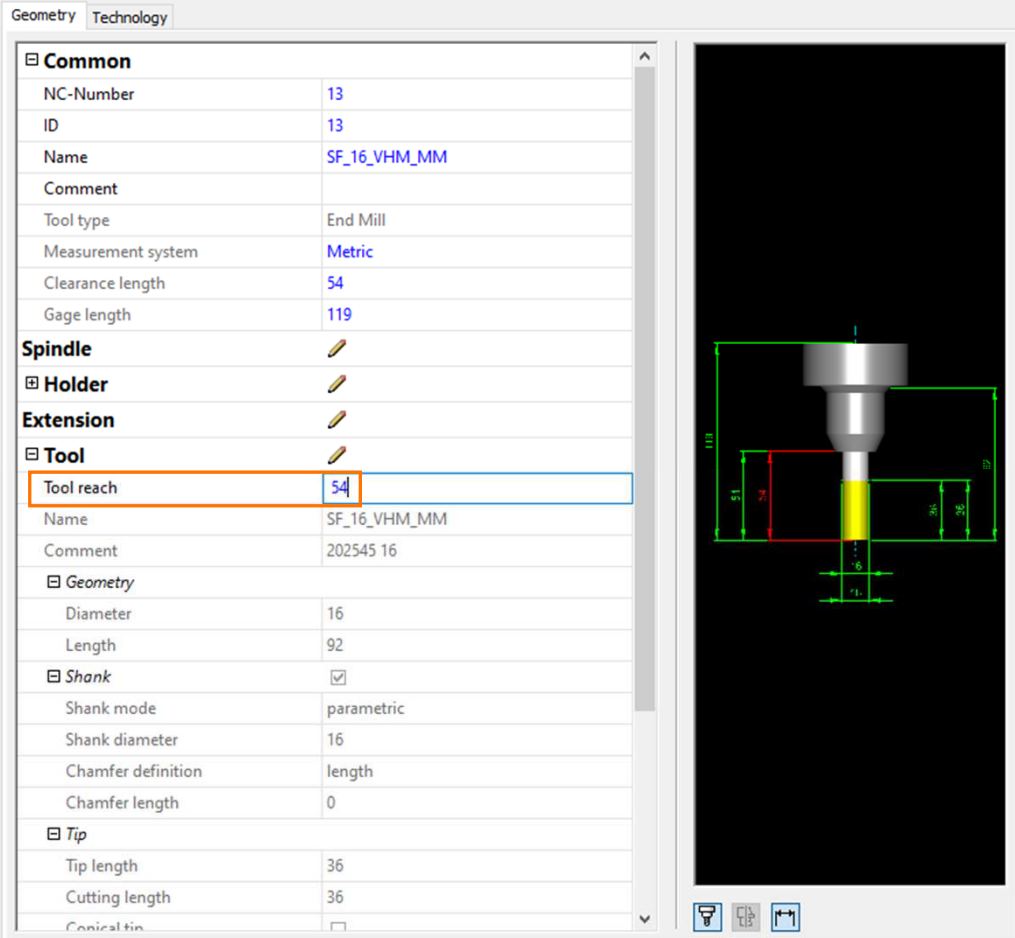
- 1. NC-Number/ID: the ID is saved as the T-No. in Connected Manufacturing and as to be **unique**. The NC-Number is for internal using in HyperMILL. It is recommended to use the same value for both fields
- 2. Name: for a clearly identification of the toolassembly (**required**, has to be **unique**)
- 3. Holder: with this button a holder from the database will be connected to the toolassembly (**required**)

Geometry		Technology
Common		
1	NC-Number	13
	ID	13
2	Name	SF_16_VHM_MM
	Comment	
	Tool type	End Mill
	Measurement system	Metric
	Clearance length	92
	Gage length	92
Spindle		
Holder		3

HyperMILL Tooldata

Create new NC-Tool (Toolassembly)

- Here you have to put in the extension length of the cutter (**required**)



The screenshot displays the HyperMILL software interface for configuring tool data. The left pane shows a table of parameters for the tool assembly SF_16_VHM_MM. The 'Tool reach' field is highlighted with an orange border and contains the value 54. The right pane shows a 3D model of the tool with dimension lines indicating various lengths.

Common	
NC-Number	13
ID	13
Name	SF_16_VHM_MM
Comment	
Tool type	End Mill
Measurement system	Metric
Clearance length	54
Gage length	119
Spindle	
Holder	
Extension	
Tool	
Tool reach	54
Name	SF_16_VHM_MM
Comment	202545 16
Geometry	
Diameter	16
Length	92
Shank	
<input checked="" type="checkbox"/>	
Shank mode	parametric
Shank diameter	16
Chamfer definition	length
Chamfer length	0
Tip	
Tip length	36
Cutting length	36
Conical tip	<input type="checkbox"/>