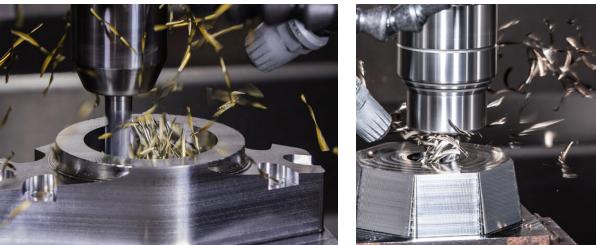


# InventorCAM 2017

The unique, revolutionary Milling technology  
**iMachining®**  
patent by SolidCAM

TIME SAVINGS

**70%**  
... AND MORE!



## What's **NEW**

iMachining **2D** | iMachining **3D**



**InventorCAM + Inventor**

The Complete, Integrated Manufacturing Solution



**InventorCAM**  
iMachining – The Revolution in CAM!

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## New Features and Improvements

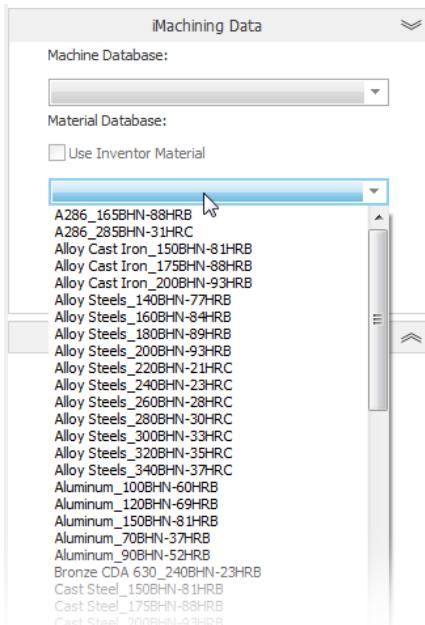
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# New Features and Improvements

## 1. Option to Use Inventor Material

The iMachining technology requires you to define the CAM-Part work material. Among other factors, the property data of the material is used by the iMachining Technology Wizard to automatically produce Cutting conditions that are optimal.

The installation of InventorCAM includes a basic Material Database of more than 70 different materials.



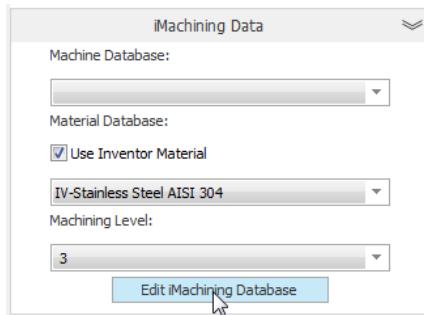
New materials often have to be added to suit your needs.

**NEW** If you prefer applying materials to your Autodesk Inventor parts using the Material Library of the CAD system, InventorCAM 2017 enables you to define the work material of the CAM-Part using the Inventor material.

In the CAM-Part Definition, the **Use Inventor Material** option is initially inactive until the Target model is defined. If InventorCAM detects that a material is applied to the Autodesk Inventor part or to the solid body representing the target, the option is activated.



When the **Use Inventor Material** option is selected, the Inventor material is populated to the Material Database list and is chosen for the work material automatically.



InventorCAM extracts the necessary property data from the Autodesk Inventor Material Library so that the iMachining Technology Wizard can calculate the force required to cut the material.

Material Browser

Name	Category
Generic	Misc
<b>Stainless Steel AISI 304</b>	Metal

Material Editor: Stainless Steel AISI 304

Identity	
Name	Stainless Steel AISI 304
Description	Stainless Steel, 18/8
Keywords	structural, metal, CC-AISI
Type	Metal
Subclass	Steel
Source	Autodesk
Source URL	

Basic Thermal	
Thermal Conductivity	2.167E-04 btu/(in·sec·°F)
Specific Heat	0.119 btu/(lb·°F)
Thermal Expansion Coefficient	9.611E-06 inv °F

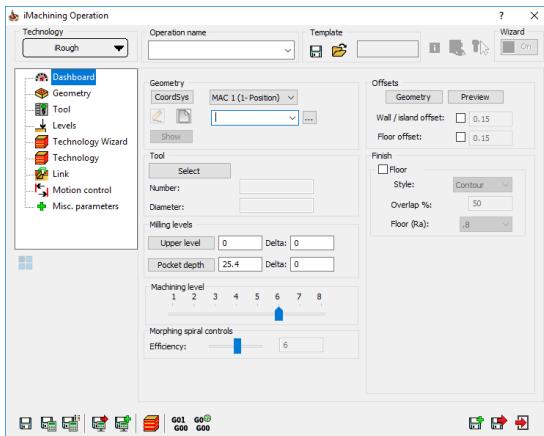
Mechanical	
Behavior	Isotropic
Young's Modulus	2.828E+07 psi
Poisson's Ratio	0.29
Shear Modulus	1.247E+07 psi
Density	0.289 pound per cubic inch

Strength	
Yield Strength	3.118E+04 psi
Tensile Strength	7.324E+04 psi
<input type="checkbox"/> Thermally Treated	

## 2. iMachining Dashboard

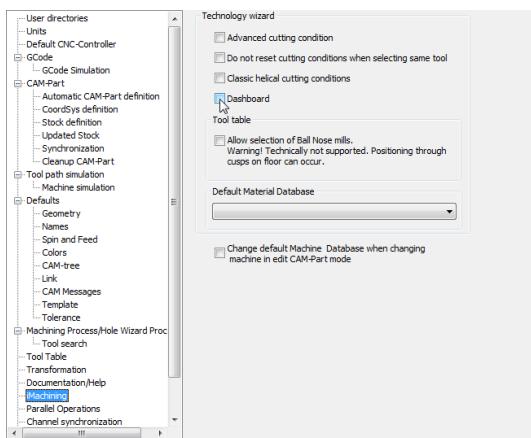
NEW

InventorCAM 2017 features a new Parameters page, named **Dashboard**, in the iMachining Operation dialog box. The iMachining Dashboard provides you with quick access to the required and most commonly used parameters on a single page.



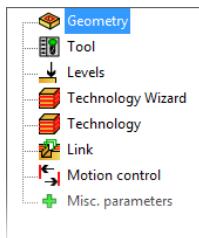
All parameters appearing on the Dashboard page are simply a duplication of those on the subsequent pages, which is meant to simplify the Operation definition process by minimizing number of clicks. It was designed only for iMachining 2D operations and is primarily for experienced users.

Enabled by default in the InventorCAM Settings, the **Dashboard** option can be turned off and back on again at any time.



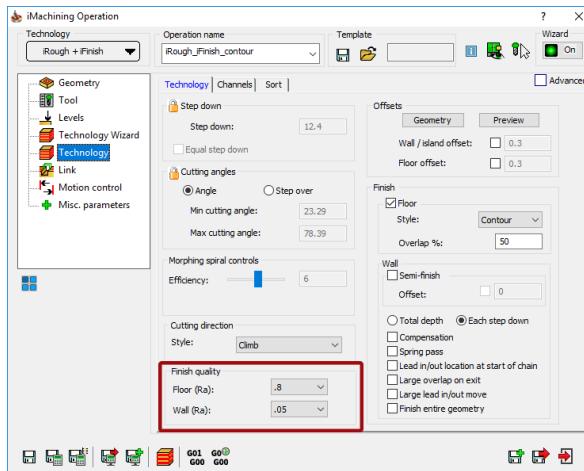


When disabled, the Dashboard page is hidden from the iMachining Operation dialog box and the Parameters pages appear as they were in previous versions of InventorCAM.



### 3. Definition of Wall and Floor finish quality by Ra values

**NEW** In InventorCAM 2017, you can define for iMachining 2D operations the finish quality of the wall and floor surfaces using Ra values.

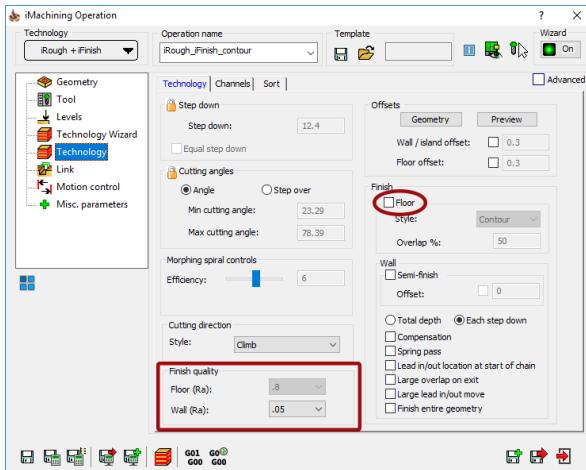


**Ra (Roughness average)** is the most widely used one-dimensional roughness parameter that measures the microscopic peaks and valleys of a surface, describing its arithmetical mean deviation.

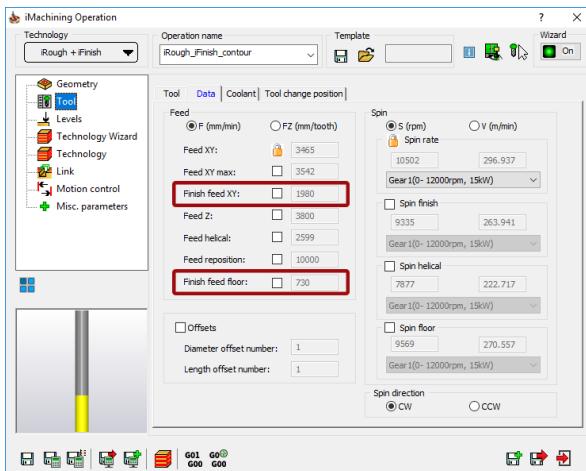
Expressed in micrometers (microinches), the default Ra values are 0.8 µm (32 µin) for the Floor and 0.05 µm (2 µin) for the Wall. A larger number specifies a rougher surface with more deviation. A smaller number specifies a smoother surface with less deviation.

Only the iRough + iFinish and iFinish technologies enable you to define the Wall finish quality.

All iMachining 2D technologies enable you to define the Floor finish quality only when the **Floor** option is selected. When not selected, the Floor (Ra) parameter is inactive.



The specified Ra values affect the finish feed rates automatically calculated for the tool, which are shown on the Data tab of the Tool page.

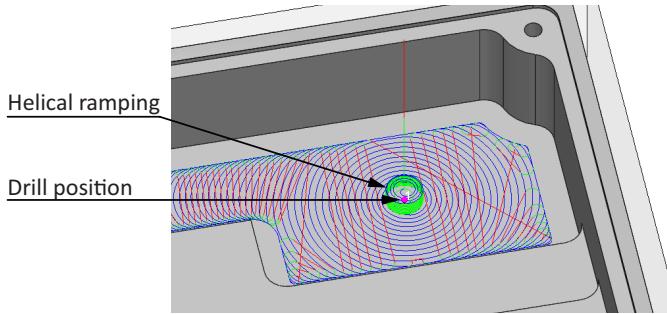


Increasing the Floor (Ra) value produces a higher Finish feed floor value. Increasing the Wall (Ra) value produces a higher Finish feed XY value. Decreasing the Wall or Floor surface roughness produces correspondingly slower feed rates.



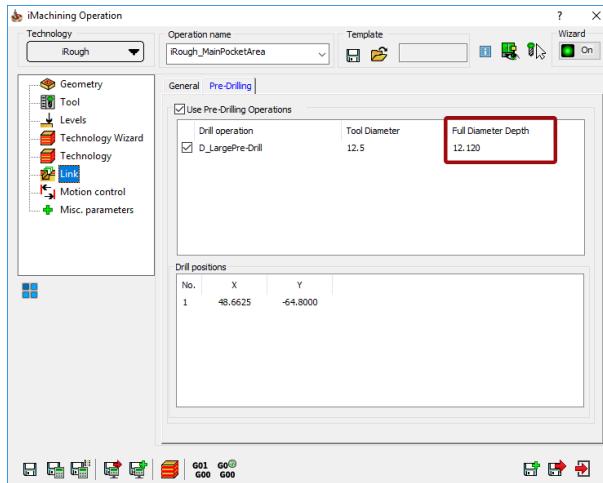
## 4. Display of Full Diameter Depth in pre-drilling data

The iMachining technology extracts, stores and can use the data from previously applied Drilling operations for calculating entry points. In InventorCAM 2015 and earlier, the pre-drilling data consisted of the drill diameter and drill positions, restricting the entry tool path to vertical entries only. Since InventorCAM 2016, although not visible in iMachining operations, the pre-drilling data was improved to include the full diameter drilling depth. In the case of large pre-drilled blind holes, the improved data enables iMachining to perform the appropriate entry tool path automatically.



As shown in the above example, the tool performs helical ramping, where the bottom of the hole must first be made flat to the drill point on the pocket floor.

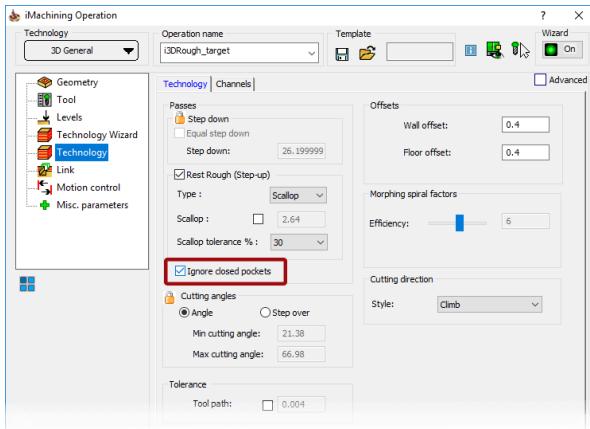
**NEW** In InventorCAM 2017, the extracted Full Diameter Depth is now visible in the Use Pre-Drilling Operations definition window on the Pre-Drilling tab of the Link page.



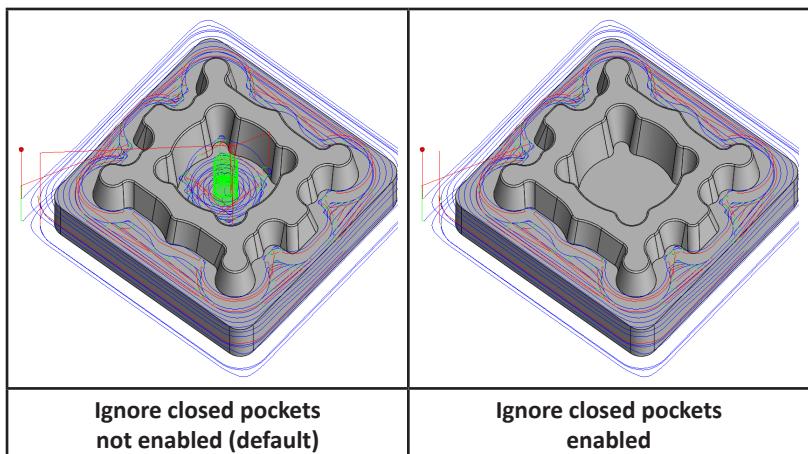
## 5. iMachining 3D option to ignore closed pockets

iMachining 3D analyzes the Target model and then recognizes all its features and depths automatically. A single iMachining 3D operation removes all the volumes of material that can be removed using the selected tool. The iMachining 3D tool path consists of both Step down (roughing) and Step-up (rest roughing) passes.

In InventorCAM 2017, the machining of closed pockets can be ignored in iMachining 3D operations. The **Ignore closed pockets** option appears on the Technology page for iMachining 3D only.



When enabled, iMachining 3D eliminates the roughing and rest roughing tool path passes contained in closed pocket areas (e.g., cavity features of a mold core), leaving only those volumes unmachined.

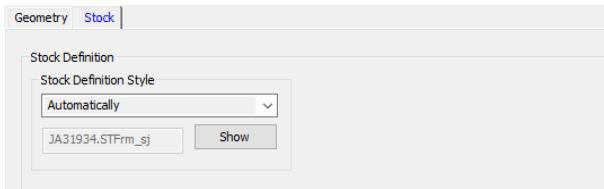




## 6. iMachining 3D Stock Definition Styles

iMachining 3D uses the initial solid model of the stock or the Updated Stock model (USM) from a previous operation as input for the starting Stock model of the current operation. Depending on the types/complexities of the previous operations and the order of the current operation in the CAM tree, the time required to calculate the USM could be quite lengthy.

**NEW** In InventorCAM 2017, you can choose how the starting Stock model is defined for iMachining 3D operations on the Stock tab of the Geometry page using one of two styles.



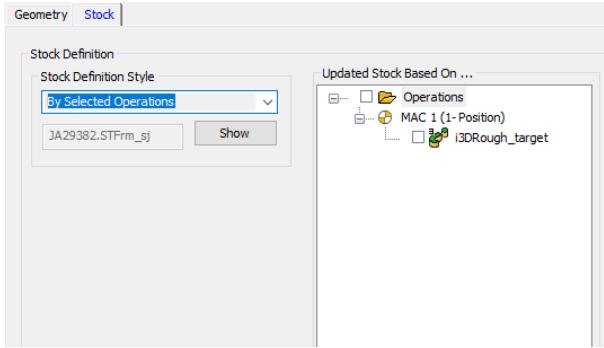
**Automatically** is the default selection but with the **By Selected Operations** style, you can control the number of USM recalculations and save time.

### Automatically

The USM generated after processing all previous operations is used as the starting Stock model for the current operation.

### By Selected Operations

With this selection, the Updated Stock Based On... window appears.



The Operations tree contained in the window shows all the operations preceding the current one. Any number of previous operations, whether calculated or not, can be selected for the USM definition.

The USM generated after processing the selected operations is used as the starting Stock model for the current operation.



**By Selected Operations** might be used when you want to ignore non-important operations (e.g., drilling of holes) or those that are not prerequisites to the current operation.

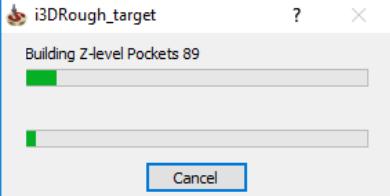
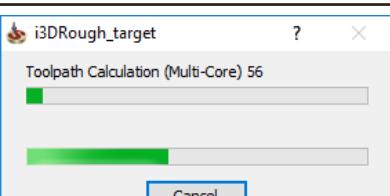
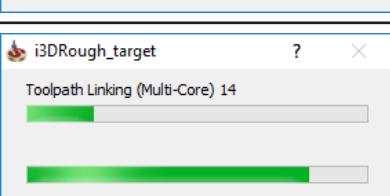
The field below the Stock Definition Style drop-down list displays the file name of the USM used in the rest material calculation. All **\*.STFrm** files are stored within the CAM-Part. Clicking the **Show** button displays the USM/starting Stock model in the Autodesk Inventor graphics window.

## 7. New progress bar for iMachining 3D



InventorCAM 2017 provides improved visual feedback during the calculation of iMachining 3D operations with the implementation of a new progress bar.

The progress bar is separated into three sections and is more descriptive than it was in previous versions of InventorCAM.

	Z-levels building (calculation of scallop levels)
	Tool path calculation (multi-core support is used to optimize the calculation time)
	Tool path linking (multi-core support is used to optimize the calculation time)

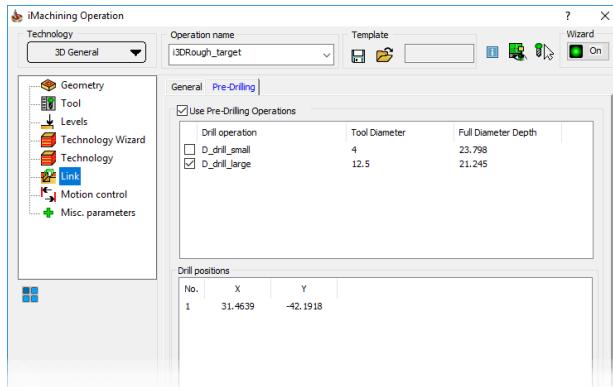


## 8. Pre-Drilling support in iMachining 3D

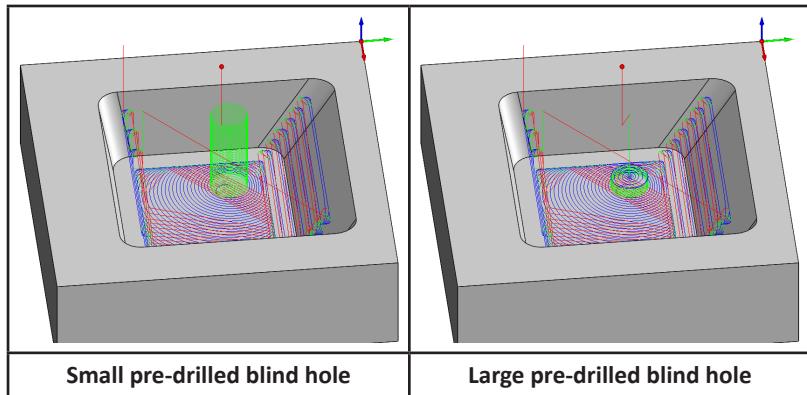
Prior to InventorCAM 2017, only iMachining 2D supported Pre-Drilling definitions.

Like iMachining 2D, iMachining 3D can now use the data from previously applied Drilling operations to calculate entry points automatically. There are two important points to keep in mind:

1. When the previously drilled hole is a through hole, iMachining 3D can automatically recognize it and use it for entry.
2. When the previously drilled hole is a blind hole (small or large), the pre-drilling must be defined using the options on the Pre-Drilling tab of the Link page.

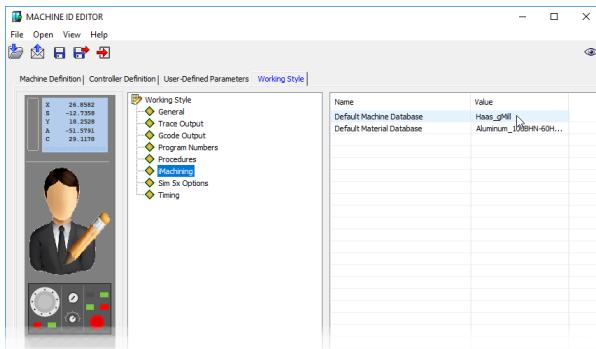


Based on the combined data of both the Pre-Drilling and iMachining 3D operations, entry holes are recognized and the appropriate entry tool path is determined automatically.

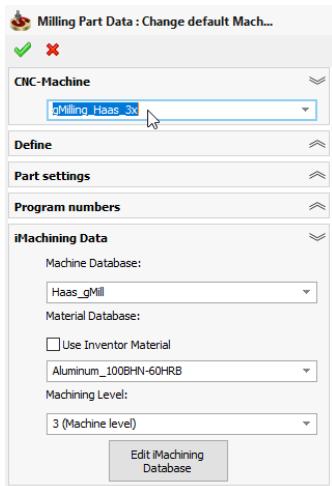


## 9. Change the default Machine Database selection automatically

To simplify the CAM-Part Definition process, InventorCAM enables you to specify default settings for the iMachining Data selections by associating a machine and work material to your post-processor. The default selections are defined in the Machine ID Editor dialog box and saved in the \*.vmid (Virtual Machine ID) file of the CNC-Machine controller.



Upon choosing the CNC-Machine controller in the CAM-Part Definition of newly created CAM-Parts, the default selections (if defined) will appear automatically in the iMachining Data section of the Milling Part Data dialog box.

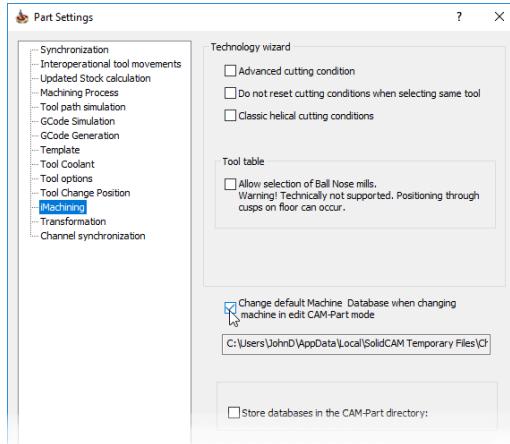


**NEW** In InventorCAM 2017 is the option to have the default Machine Database selection automatically changed if you choose a different controller in the CAM-Part Definition of existing CAM-Parts.



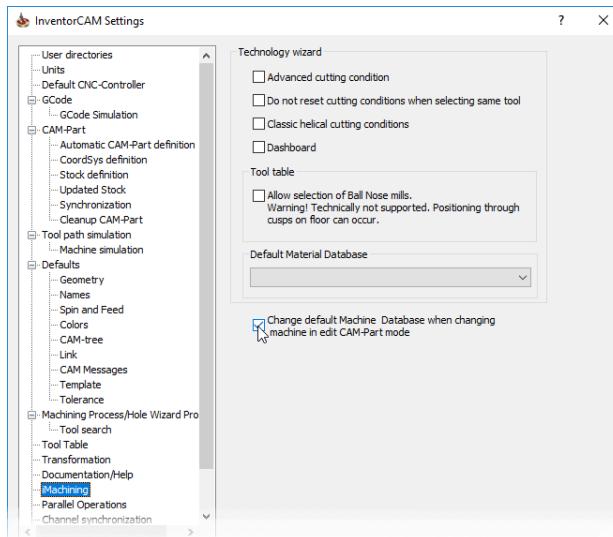
The option to **Change default Machine Database when changing machine in edit CAM-Part mode** can be enabled in the following two ways:

1. Per project in the Part Settings dialog box-> **iMachining** page.



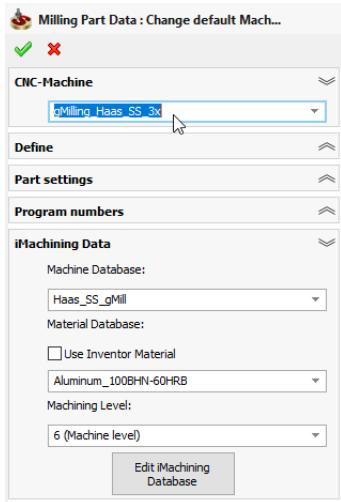
Enabling the option here affects only the current CAM-Part.

2. Globally in the InventorCAM Settings dialog box-> **iMachining** page.



Enabling the option here affects all newly created CAM-Parts.

Upon changing the CNC-Machine controller in the CAM-Part Definition of existing CAM-Parts, the Machine Database selection is updated accordingly.



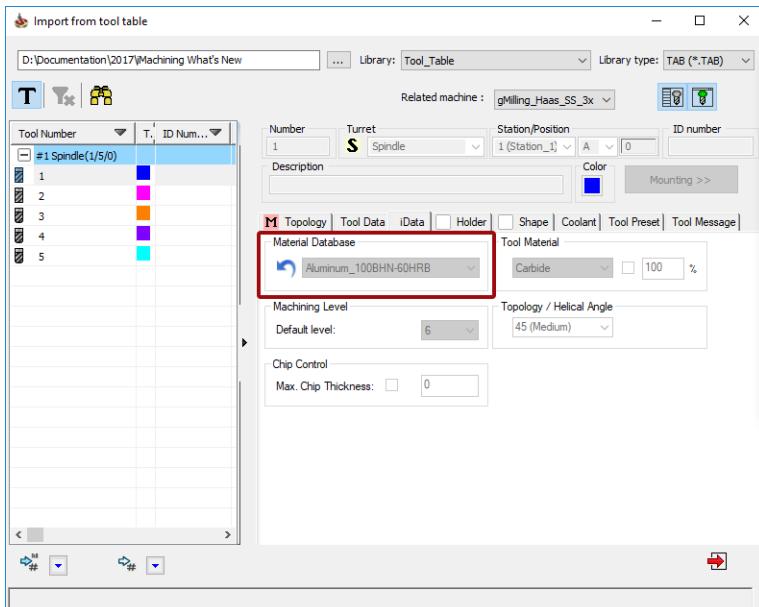
The newly chosen controller must have a default machine associated to it. If it does not, the machine selection will remain the same.

## 10. Import all tools with different Material Database selection

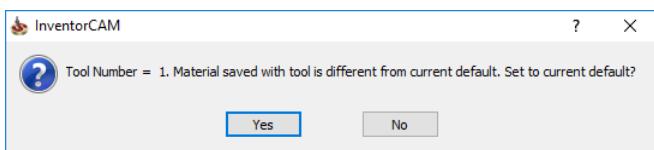
When defining new tools for the CAM project, the Material Database selection is inherited from the CAM-Part Definition.

The screenshot illustrates the inheritance of material database settings. On the left, the 'Import tools with ...' dialog shows 'Haas\_SS\_New' selected in the 'Machine Database' dropdown. On the right, the 'Part Tool Table' shows a tool entry for '#1 Spindle(1/1/1)' with its 'Material Database' dropdown also set to 'Haas\_SS\_New'. An orange arrow highlights the 'Material Database' dropdown in the tool table, indicating that the value is inherited from the part definition.

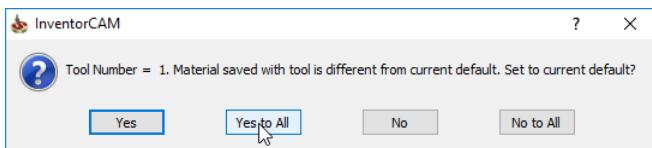
If preferred, you can also import tools to the Part Tool Table from a predefined Tool Library. In some cases, the Material Database selection of the tools contained in your Tool Library may differ from the CAM-Part default.



When importing more than one tool, previous versions of InventorCAM required that you manually confirm for each tool whether to keep the Material Database selection or to change it to the CAM-Part default.



In InventorCAM 2017, there are the simpler options of **Yes to All** or **No to All** when importing more than one tool, which helps save time by reducing some number of clicks to just a single click.



# InventorCAM 2017

## What's NEW

iMachining 2D | iMachining 3D

### The Complete Range of Manufacturing Applications Inside Autodesk® Inventor®

InventorCAM is the leading and fastest growing developer of integrated CAM software solutions for the manufacturing industry. InventorCAM supports the complete range of major manufacturing applications in Milling, Turning, Mill-Turn and WireEDM, totally integrated inside Autodesk Inventor.

### The Revolutionary iMachining® Module

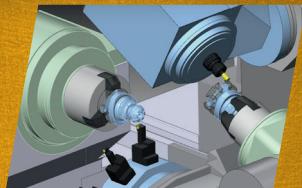
The InventorCAM iMachining module is a giant leap forward in CNC machining technology, reducing cutting times by up to 70% and increasing tool life dramatically. iMachining achieves these advantages by using a patented “Controlled Stepover” technology and managing feed rates throughout the entire tool path, ensuring constant tool load and allowing much deeper and more efficient cutting.

iMachining is driven by a knowledge-based Technology Wizard, which considers the machine being used, the material being cut and the cutting tool data to provide optimal values of the Cutting conditions. With its Morphing spiral tool paths, controlled tool load at each point along the tool path, moating of islands to enable continuous spiral cuts, even with multiple islands, and automatic thin wall avoidance, iMachining brings efficiency to a new level for CAM users.

### The Highest Level of Autodesk Inventor Integration

InventorCAM provides the highest level of CAD integration, with seamless, single-window integration and full associativity to Autodesk Inventor. The integration ensures the automatic update of tool paths for CAD revisions.

**InventorCAM Powers Up the User's Autodesk Inventor System into the Best CAD/CAM Solution.**



[www.youtube.com/SolidCAMProfessor](http://www.youtube.com/SolidCAMProfessor)  
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**InventorCAM**  
iMachining – The Revolution in CAM!

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