What's New in SolidCAM 2020



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What's New in SolidCAM 2020







Hole Wizard Process – Drag to Surface

• Finds all holes, perpendicular to the surface, that are created with the Hole Wizard and automatically adds operations for the holes







Full Syncronization in Hole Wizard Process

• Changing hole type or size will automatically change the tools and update the operations



on <u>YouTube</u>





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Face Milling Operation – Floor Finish Only

- You can now use *Floor finish only* to apply tool path only on the finish level
- Uses the Spin and Feed rates defined for Finish

ace mining operation		1 ~			
lechnology	Operation name		Technology	Operation name T	
Face Milling	FM_Updated stock		Face Milling		
Geometry	Technology Hatch Advanced		Geometry	Tool Data Coolant Tool change position	
Tool	lechnology	Offsets		Feed	Spin
Levels	Hatch V	Floor offset: 0	Levels	F (mm/min) FZ	Spin rate
Technology	Overlap		Technology	Feed XY: 1000	• S (rpm)
🔁 Link	% of tool diameter	Finish Floor finish only	Link	Finish feed XY: 800	4000 502.655
Motion control	Value		Motion control	Food 7: 300	Gear#1(0- 60000rpm, 15kW) ~
🕂 🕂 Misc. parameters	Equal step over		🚽 🕂 Misc. parameters		
	Classic spacing			Feed Link, %:	
	Depth Cutting Type			Feed Lead In, %:	S (rpm) O V (m/mii S000 628 318
				Feed Lead Out, %: 100	020.320
	Concilia, Classica				Gear#1(0- 60000rpm, 15kW) ~
	Tool Path				Spin direction
	Reverse			0.	● cw ○ ccw
				Diameter officet number: 51	
	Sort cut order			Length offset number: 1	Cutting conditions
	Complete Z-level			Lengtronset number.	
	1				
				G01 G0	r# r + .5
	GOO GOO			G 00 G 00	
	See <u>Demo</u>				
que, revolutionary Milling Technology					
runion				and Palaces and	

Pocket Operation – Floor Finish Only

• You can now apply a Floor finish only that will go up to the wall offset







Pocket Operation – Wall and Floor Finish Only

• You can now apply a *Wall and Floor finish only* that will go up to the wall offset on the floor, and then finish the wall with the defined step down







Chamfer Recognition – Conventional Direction Enabled

• You now have the option of *Conventional* cutting direction

echnology	Operation name	Ter	nplate	
Chamfer Recognition	CHamfer_faces	~	₽ 🖻	🔲 👫 🔊
Seometry	Technology			
Tool	Chamfer parameters		Offset	
−	Cutting diameter:	1	Safety offset:	1
- 🔁 Link	Depth cutting type		Cutting	
Motion control		7	Equal step down	
- 🚏 Misc. parameters	One way		Sten down:	0
	Direction			
	Conventional	OClimb	Copies of last cut:	1
			Extension/Overlap:	0
	Change feed in internal of	corners	Compensation	
	Previous tool diameter	0	Minimum Edge Length:	0
	Previous wall offset:	0		
	Extension/Overlap:	0		
	Feed in corners:	500		
╸┍╼╻┍╼╬╎┍╼╋╷┍╼╩╎╭	 601_60 [®]			

See Demo

on

YouTube

ue, revolutionary Milling Technology





Drill Geometry – Improved Synchronization with Multi-positions

• Adding or removing holes from a face will now be recognized on synchronization, when using *Multi-positions* to choose the drilling geometry



Pocket Operation – Open Edge Negative Offset

Modify Geometry now supports negative offset values on open edges
Very helpful when trying to avoid objects near the open edge



Profile Operation – Syncronized Link by Points

- Lead in/out with points are now fully associative
- The points will synchronize and update the tool path if location is changed

What's New in SolidCAM 2020

3D Positioning in iMachining 2D

- iMachining 2D can now perform 3D in-pocket positioning like iMachining 3D
- Made possible by using the Stock model that is dynamically updated by each cutting move
- Smart positioning greatly reduces retracts and further optimizes iMachining 2D tool path
- 3D Positioning status:
 - On (by default) for newly added operations
 - Off for all existing operations

3D Positioning Comparison – Tool Path Results

3D Positioning Off

3D Positioning On

Machine Database from VMID and Station Data

- iMachining Database now offers new Machines category - Defined By VMID
- Add new machines with values based on those defined in VMID
- Default Machine Database values set to 100% of VMID values
- Option to create "Global Machine" that can quickly and easily be used with any CNC-Machine selection

See Demo

Databases A Machines	Properties					
Defined By VMID	Units:	Metric		~		
Global Machine Standard Haas_SS (Currently Selected)	Name:	Global Machine]	
Haas_SS_New Hermle_C30_TZ						
🗄 - Grouped Materials	Paramete	r	Value		Units	
- Non Grouped Materials	Spindle sp	eed max	100.00		%	
A286_1658HN-88HRB	Feed rate	max	100.00		%	
Alloy Cast Iron_150BHN-81HRB	Repositio	n feed rate XY	100.00		%	
- Alloy Cast Iron_175BHN-88HRB	Repositio	n feed rate Z	100.00		%	
Alloy Cast Iron_2008HN-93HRB	Spindle p	ower max	100.00		%	
Alloy Steels_160BHN-84HRB	Efficiency		100.00		%	
Alloy Steels_180BHN-89HRB	ACP toler	ance	20.00		%	
Alloy Steels_200BHN-93HRB	Machinin	n level	3	-	Integer	
Alloy Steels_240BHN-23HRC Alloy Steels_260BHN-28HRC Alloy Steels_280BHN-30HRC Alloy Steels_380BHN-33HRC Alloy Steels_340BHN-33HRC Alloy Steels_340BHN-33HRC Aluminum_100BHN-60HRB Aluminum_120BHN-69HRB Aluminum_150BHN-83HRB						

User-defined Arc Fitting Tolerance

- iMachining tool path minimizes arcs according to a small arc fitting tolerance by default, resulting in many points but very precise engagement angles
- You can now modify the default tolerance with a preferred, larger tolerance
 - Useful for limited memory machines
- Defining larger than default tolerance will:
 - Decrease length of GCode (pro)
 - Decrease accuracy of engagement angles (con)

Arc Fitting Tolerance Comparison – GCode Results

User-defined Max Cutting Angle Step-up in iMachining 3D

- With each higher Step-up, iMachining automatically increases the Cutting Angle as the axial depth of cut gets smaller
- Max Cutting Angle now visible on Technology page
- Default Max Cutting Angle values for Step-up are:
 - 80° for soft materials
 - 45° for hard materials
- Max Cutting Angle option lets you override the default values

What's New in SolidCAM 2020

New Operation – Turbo 3D HSR

- New Roughing Tool Path Engine
- True 64-bit, Multicore Support
- Multi Surface Offset Capability
- Hatch, Contour & Rest Roughing
- Stock Model Definition Including Undercut Stock
- Collision Check Against Fixtures
- Pre-Drill Holes Definition for Entry
- Dynamic Holder Collision Checking
- Feed Control Zone Definition for Variable Feeds
- Variable Depth of Cuts
- Arc Fitting for Reduction in GCodes

TR Hatch	
TR Contour	
TR Rest	
HM Roughing	9
Contour roug	hing
Hatch roughi	ng
Hybrid Rib ro	oughing
Rest roughing	g

Turbo 3D HSR – Multicore Support

- 64-bit calculation engine multicore support
- Speed of calculation increases as the # of cores increase
- Tool path caching = even faster recalculation

Turbo 3D HSR – Multiple Surface Offset

target Global 1 0.00 0.000 Global 0.2 0.000	Surface		Offset type		Global offset	Radial offset	Axial offset	
♦ faces Global 0.2 0.000 0.000	😓 target	-	Global	-	1	0.000	0.000	
	faces	-	Global	•	0.2	0.000	0.000	
	14.							
	<							

- Turbo roughing allows multiple surface offsets to be defined
- Infinite groups can be created with different surface offsets
- Very useful when machining tools & molds where flat parting surfaces are finished in the roughing stage

Turbo 3D HSR – Strategies

- Different machining patterns available
 - Hatch, Contour and Rest roughing

Turbo 3D HSR – Rest Roughing

- Rest roughing in Turbo 3D HSR
- Based on either Updated Stock or previous tool
- User can specify the minimum stock thickness above which the tool path will be generated
- Arc fitting in rapid moves provides smooth transition between passes

Turbo 3D HSR – Local Stock Definition

Geometry Stock Fixtures Pre-drilled Holes		
Respect stock model		
Stock definition Auto updated stock V	Tolerance: 0.01	
Auto updated stock Surfaces Uising 2D boundary	O Shrink 0	
Using 20 boundary	Expand 0	
Detect rest material thicker than 0	Stock has undercuts	Stock has undercuts
	Use part silhouette	
Use boundary		Use part silhouette
Boundary name	Tool-boudary relation	
	Outside 🗸 🗸	
Show	Offset value: 0	

• Stock definition including undercut stock definition

• Local Stock can be defined for the operation

Turbo 3D HSR – Fixture Collision Protection

	Geometry St	ock Fixtures Pre-drilled	d Holes		
Seometry Stock Fixtures Pre-drilled Holes	Define Fixtur	es by: Faces	~		
Define Fixtures by: Faces	Surfaces and	Offsets	5034 SC 75		37.835
Surfaces and Offsets Extruding curves	Surface	Offset type	Global offset	Radial offset	Axial offset
Surface Offset type Global offset Radial offset Axial offset		Add >	1	12	
		Select >	Surfaces		
There are no items to show in this view		Show	Solution Model	s view.	
There are no nems to show in this view.		Edit	Fixture		
		Delete			
		Delete All			
< >>	-		1		
					-

- Collision checking against fixtures using either Faces or Curves definition
- Fixture definition can be done using Faces, Part Model or Fixture Definition in Machine Setup

Turbo 3D HSR – Pre-drilled Points

- Pre-drilled holes can be defined for tool entry; depth of drilling is recognized and ramping beyond the drilling depth is started automatically
- Very useful feature for roughing with non-center cutting tools

Turbo 3D HSR – Adaptive Feed Rate

• Adaptive feed rate function allows for constant cutting conditions

• Very useful feature for roughing that maximizes tool life

Turbo 3D HSR – Dynamic Holder Collision

• Dynamic Holder Checking provides collision free tool paths when using short tools

Turbo 3D HSR – Automatic Ramping

	×					
mping Approach/Retract Links	_		 Ram	ining priority se	quence	
amping parameters	Ramping priority	sequence		-	quente	
Center cutting tool	Prio Type		Prio	Туре		
Auto	1 Helical		1	Line		
Auto V	2 Zigzag	-	2	Zigzag		
	4 Profile		3	Helical		
tamp angle:			4	Profile		

• Automatic ramping makes decision of applying Ramp Type easy with a pre-defined fall back sequence in event a certain style of ramping is not possible

Rar

Turbo 3D HSM – Sharp Corners

More accurate sharp corner motion is now created in Turbo 3D HSM tool path

• A fine radius is now added to prevent part wall damage

New Operation – 3-Axis Undercut Milling

- New 3 Axis Undercut Machining operation works directly on models
- Constant Z strategy is currently available

New Operation – 3-Axis Undercut Milling

- Gouge free tool paths
- Support for Slot Mills & Lollipop Cutters
- Automatic collision control for Shank & Holders

What's New in SolidCAM 2020

HSS & SIM 5X

HSS & SIM 5X – Progress Bar

		8.2
Object: Tool path section.		
Operation: Converting cuts to spiral ((20%).	
Overall progress: 17% Calcula	ation time: 00	:00:04

• Calculation progress bar is now visible for all HSS & SIM 5X Operations

HSS & SIM 5X – Activating & Deactivating Options

💩 Sim. 5-Axis Milling					? ×
Technology Parallel cuts	Operation name: 5X_selected_faces_2	~	Template		
Parallel cuts	Multi-passes Depth cuts Rotate&Translate Stock definition			Plunging Norph pocket Area roughing Sorting	Advanced
Moduling and More	Mirror Links between passes Small moves: Large moves:	Clearance area	~	Don't use Lead-In/Out Don't use Lead-In/Out	>
	Small move as value:	e / direct links	10		
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• The options on Roughing and More page can now be activated/deactivated by just clicking on the corresponding check boxes

HSS & SIM 5X – Multiple Boundaries Definition

• Multiple boundaries are now supported in a single operation for HSS & SIM 5X

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HSS & SIM 5X – Extend Toolpath

HSS Parallel to Curve(s) opera	ation	? ×	
Fechnology	Operation name: Template		
Parallel to curves 🔻	HSS_ParC_faces	🔳 🌉 🖏	•
CoordSys ^	Surface quality Sorting Modify	Advanced	
- Seometry	Sorting	1	
Tool	Cutting method: Zigzag ~		
Tool path parameter			
- S Tool control		SC 2019	
🚰 Link	Direction of machining: Oimb	002010	
Default Lead-Ir	Cut order: Standard ~		
Gouge check	Machine hos		
Rouching and More	regard *		
Machine control	Enforce closed contours		
>	Flip step over		
	Start point		
			Extend/ rum X
2			Use Extend/Trim
			Tangential extensions
			Start () % tool dameter: 0 (Value: 10
	-		End O % tool dameter: 0 O Value: 10
R 🖬 🖬 🖬	601 60	📑 📑 🍯	Extend/Trim gaps
HSS Parallel to Curve(s) open	ation	? ×	
echnology	Operation name: Template		
Parallel to curves 🔻	no_raru_races 🗸 🔛 📴	II 👪 🗤	
CoordSys ^	Surface quality Sorting Modify	Advanced	
Seometry	Sorting		
Tool	Cutting method: Zinzan		
Levels		SC 2020	
2 Link	Direction of machining: Climb		
Default Lead-Ir	Cut order: Standard V		
Gouge check			
Gearance data	Mechine by: Regions ~		
Machine control	Enforce dosed contours		
>	Flip step over		
	Start point		
			V
Y			
111			
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	G00 G00	🖾 🖅 🔁	

• Tool path extension now extends the tool path for each region

HSS & SIM 5X – Automatic Clearance Plane

• Automatic – Clearance area direction, type and value are automatically set by SolidCAM based on the part geometry and tool path type

Screw Machining – Improvements

- Optimized tool path calculation is now 10 times or more faster
- Lead In & Lead Out definition for finishing operations
- Automatic Ramping

What's New in SolidCAM 2020

SolidCAM Simulator

Simulator ToolTips – User Option

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ToolTips – Interface Features

The unique, revolutionary Miling Technology

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ToolTips – Tool Path Information

The unique, revolutionary Milling Technology

Simulation Playback Modes

Performance Mode

Machining Time Mode

lidCAM Simulator (Beta)

Stock [loaded: FM facemill

- Machining Time mode plays the simulation according to the actual time spent running on the machine
- Playback speed slider enables you to make default speed adjustments 0.1x to 64x the actual machining time
- Playback speed edit box enables you to enter any preferred value

Improved Status Bar with Tool Path Data

Simulator Stationary Tool – User Option

• During simulation playback, you can now keep the tool stationary instead of the part

Stationary Tool – Unique Views

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What's New in SolidCAM 2020

Full Position Control of Part and Fixture

• Allows you in the Setup to set the absolute value as is on the machine for the Part or Fixture separately

Drag & Drop – Easier Navigation

 Improved Drag & Drop interface by changing the Operation Templates, Process Templates, Manage Templates and Hole Wizard Process commands into Toggle switch icons

	Cam Tamplata directory		💩 Drag & Drop Templates	
	CoordSvs	~		
	Save options	~		
<u> </u>	Operation Templates	~		
	Process Templates	~	Cam Tamplata directany	
	Manage Templates	~		~
	Hole Wizard Process	<u>^</u>	CoordSys	^
			Save options	^
		See Demo		

Drag & Drop – Cleaner Operation Templates Interface

New

• Operation Templates have been grouped into Operation type folders, making it easier to navigate to the desired template to be used

Old

Saved Cam-Settings Location Default

• Gives you full and easy control as to where CAM settings are stored

Temporary Directory Cleanup Utility

- Improperly closed parts existing in SolidCAM Temporary Directory shown in Recovery Dialog, enabling you to perform cleanup actions
- Turn Utility on/off in CAM Settings

GCode Simulation	A Settings1 Settings2	
CAM-Part Automatic CAM-Pai CoordSys definition Stock definition Updated Stock Synchronization Cleanup CAM-Part iMachining Parallel Operations Channel synchronizati Interoperational tool m Miscellaneous <	Verenv	
		l.

Clea	nup 1	emporary CAM-Parts Folder	?
lessa	ge		
/e hav he prz AM-Pa	ve fou z files l arts su Use and/	nd previous CAM-Parts that were not closed properly. nave not been zipped and updated properly. ggested actions: the Open Folder button, then open each CAM-Part and update it or delete all the files and folder using the Delete buttons.	
AM-P	arts		
	\$	Facet_Model_Edit.PRT	Open Folder
	3	IM_GEOMETRY_MODES.PRT	Open Folder
iles ar	nd Fol	ters	
iles ar	nd Fol	lers SolidCAM_Simulator.prz	
iles ar	nd Fol	Jers SolidCAM_Simulator.prz SolidCAM_Simulator_5x.prz	
iles ar	nd Fol	ders SolidCAM_Simulator.prz SolidCAM_Simulator_5x.prz	
iles ar	nd Fol	ders SolidCAM_Simulator.prz SolidCAM_Simulator_5x.prz	Continu

Network PRZ Multi-User Checking

b Part Is Open

Another user (NETWORK123/ChrisG)

Do you want to continue?

This user could still have this part open.

• SolidCAM supports checking of PRZ files that may already be opened from a network location by another user

→ 👻 🛧 🥩 > Network > SLOT			✓ Ö Search S	LOT	P	
10.11	^	Name	Date modified	Туре	Si	
Quick access		SLOT	5/22/2019 10:05 AM	File folder		
Desktop	*	HH620_VCE600_XYZ_ILC.qpp	4/2/2019 5:39 AM	GPP File		
- Downloads	×	HH620_VCE600_XYZ_ILC.vmid	5/9/2019 4:27 AM	MachinelD File		
Documents	*	Mikron_ILC.MACdbx	5/16/2019 7:01 AM	MACDBX File		
SolidCAM	*	SendTo.info	5/16/2019 7:01 AM	INFO File		
Online Help!	*	sLOT.prz	11/21/2019 12:54 PM	Part Class		
Documentation	*	📕 SLOT.prz.info	12/5/2019 2:40 PM	INFO File	_	• Multi-user and network info
SVN Repositories	*					
	*					(*.prz.info) is created and stored
o Creative Cloud Files						in come directory of part file
👝 OneDrive						In same directory as part life
This PC						
3D Objects						
E Desktop						

has opened this part without closing it (Thursday, December 05, 2019 19:16:40).

?

Continue Opening

X