What's New in SolidCAM 2016



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iMachining 2D & 3D | 2.5D Mill | AFRM | HSS | 3D HSR/HSM | Indexial Multi-Sided | Sim. 5X | Turning | Advanced Mill-Turn | Solid Probe



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What's New in SolidCAM 2016



SolidCAM2016: Advanced Mill-turn solution





VMID (Virtual Machine ID) change : Devices on Axes



- <u>Devices on Axes</u> (and not Axes on Devices): support of several devices mounted on the same axis
- <u>The VMID definition is now similar to the</u> <u>Machine Simulation structure</u>





VMID (Virtual Machine ID) change : Separation of parameters by Submachines & Channels

Open View Help						
D 🕆 🖢 🖄 🖬 🗗 🗗 Đ						
lachine Definition Controller Definition User-Defined Par	meters Working Style	1	1			
x 26.8582 Controller	Name	MainB	🔒 BackB	🔒 MainL	BackL	Units
g -12.7358 General	Support Arcs	YES	YES	YES	YES	
Tilted Plane Defint	n Helical Arcs	YES	YES	YES	YES	
C 29.1170 Program Numbers	4x Helical Arcs	YES	YES	YES	YES	
Precision Definition	Arc in One Quadrant Only	NO	NO	NO	NO	
Arc Execution Def	Greater than 180deg Arcs	NO	NO	NO	NO	
Compensation Def	Arcs in ZX/YZ Plane	NO	NO	NO	NO	
Iurning Definition	Arcs In Main Planes (XY, YZ,	NO	NO	NO	NO	
Milling Drill Cycles	5x Arcs On Face	YES	YES	YES	YES	
Urning Drill Cycles	5x Arcs On Radial	NO	NO	NO	NO	
	Max Chord Length	10.000	10.000	10.000	10.000	(mn
	Min Arc Length	0.0000	0.0000	0.0000	0.0000	(mn
transfeer	Max Arc Angle	20.000	20.000	20.000	20.000	(deg
	Min Arc Angle	0.002	0.002	0.002	0.002	(deg
	Max Arc Radius	2000.000	2000.000	2000.000	2000.000	(mn
	Min Arc Radius	0.002	0.002	0.002	0.002	(mn
~						

• More <u>flexible definition of Controller parameters</u>: possibility to apply different values to parameters used in different Submachines & Channels





VMID (Virtual Machine ID) change : Tilted plane definition

MACHINE ID EDITOR : T8HY.vmid						
Hie Open View Help						
						•
Machine Definition Controller Definition User-Defined Parameters Working Style						
x 26.8582	Name	TR1_TB1	TR1_TB2	TR2_TB2	TR3_TB2	
5 -12.7358 General	Rotation Type	Cycle 19	Cycle 19	Cycle 19	Cycle 19	
A -51.5791	First Rotation Axis	Z	Ζ	Z	Z	
C 29.1170 Program Numbers	Second Rotation Axis	Y'	Y'	Y'	Y'	
Arc Execution Definition	Third Rotation Axis	X''	X''	X''	X''	
Compensation Definition						
Turning Definition						
Turning Drill Cycles						
🕀 🗠 Vice e						
MCO Cydes						
				_		

• Full control over coordinates calculation, in case when physical rotary axes are missing on the machine





Interactive Machine Preview for VMID



The unique, revolutionary Milling Technology



Stock positioning: Mounting the stock on the table



ique, revolutionary Milling Technology

- Stock is mounted on the table (instead of Submachine) – same as on the real machine
- Definition of initial stock position (on which Table the machining starts)





Tracking the stock position in the Machine: New Clamp options



- The stock tracking is added in order to assist the programmer in definition of the CAM-Part movements
- Chuck device is moved to the Table as "Clamp" action, with 2 additional options:
 - "Close on stock" (connect stock to this table)
 - "Release stock" (when machining is complete stock is removed from the machine)





Interactive Machine Preview for MCO







Action by CNC Operator: new MCO "device"

		→			
Action on Machine Turret Table Chuck Bar Feeder Action Stock Submachine CNC Operator Misc	Process Start definition CNC Operator CNC Operator CNC Operator Monual Stock Transfer Morking time Message		esable Name	Value MS Etau R1	

- Any action of CNC Operator can be taken into account in machining time calculation
- Manual Stock Transfer from table to table option





Drive units : Improvement in Spin definition

Ontions	Name	Value	Units	Tool Data Origin position Coolant Too	
Machine Orientation	Active	YES			
X	Rotation Vector	A		Feed	Spin Spin rate
⊢≩ Y	Number of gears	2			S (rpm) O V (m/min)
E E I I I I I I I I I I I I I I I I I I	Gear #1 Gear #2	0.00 - 4000.00rpm, 5kW 3000.00 - 7000.00rpm, 10kW		○ F (mm/min) ● F (mm/rev)	1000 201.05
				Feed normal: 0.1	Gear#1(0-6000rpm, 15kW) ∨
					Spin finish
Opuons				Feed finish: 0.05	S (rpm) V (m/min
				Safety parameters:	1000 201.05
🗄 🖸 Station_1		Y		Safety angle: 0	Gear#1(0- 6000rpm, 15kW) ~
Submachines	Gear #1 Properties	~			Auto Gear-switching
🖫 Spindle_Table	Spin (rpm)				Reference diameter: 63.999
	Spiri ((piri)			Offsets	Min Spin (rom):
	Min: 0	Max: 30000		Tool offset number: 1	Min. spin (rph): 1000
					Max. Spin (rpm): 1000
	Power (kw): 15				Stay in gear limits
				Pick feed points	

- Support of several Gears on the same device = spin definition as on real machine
- Automatic selection of the Gear according to the Spin defined





Interactive Machine Preview for Tooltable

Mounting
Z+ Z- X+ X- III III IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Axes
C2: 0 X2: -100 Y2: 1593 TRAx2 0 Y1: 0 TRAx1 0
Z2: 0 C1: 0 B: 0 Z1: 0 X1: 0

revolutionary Milling Technolog

New Mounting interface:

- Possibility to see other tools mounted on the same turret
- Preview of machine (if Machine model for Machine simulation is defined)
- Contol over machine axes position for better mounting comprehension



Machine Simulation : Show actual axes positions



No need anymore to select previous MCOs in order to launch MachSim on selected operation





Result: Extended support of complex mill-turn CNC machines





Extended support of complex mill-turn machines in all stages:

- Virtual machine (*.VMID) definition
- Tool mounting
- CAM-part programming
- Machine Simulation
- G-code generation



Extended support of complex mill-turn CNC machines













What's New in SolidCAM 2016

Channel Synchronization





Channels Synchronization : Colors definition in Machine ID file (*.VMID)



- Operation in Channel Synchronization manager could be colored by Table, by Turret and by Workpiece
- Colors of table, turret, workpiece and various stock management operations are set in *.VMID file
- Colors of Label and of the cell in case of manual operation duration definition is set in SolidCAM settings



Channels Synchronization : Axes transfer from channel to channel



• Right click on non-kinematic (gray italic) Axis in Synchronization Label allows to transfer control over this axis to another channel





Channels Synchronization : Continuous production

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🖣 🎟 🎬 💰 🗙 🗰 🗶 🕜 🔇) 🔁 🐁 🗷 🛤 🛋 🔊 (°					
UP_TR		LW_TR				1
			v	772 01	. 1.	٦.
(0)Setup	X1 Y1 Z1 Z B C 001			22 01		
	<u>X1 Y1 71 77 8 C1 -3-</u>		Y	72 0	- 2 -	
		(1)TR contourt LW TR-14 (T1)	X	72 0	1.27	
	X1 Y1 71 Z B C - 3-		X	72 01	- 3-	1.
(2)TBB_contour2_UP_TB-1A_(T2)	X1 Y1 Z1 Z B C 2:41	(2)TBB_contour2 (Slave) I.W_TB-1A_(T1)	XZ	72 0	2:41	
•	X1 Y1 Z1 Z- B C1 -4-		X	2 72 C	- 4 -	٦.
		(3)DRILL LW TR-2A (T3)	XZ	Z2 0	0:03	
		(4)DRILL 1 LW TR-4A (T5)	XZ	Z2 0	0:03	
		(5)DRILL 2 LW TR-6A (T7)	XZ	Z2 0	0:03	
		(6)TR contour2 LW TR-3A (T4)	X2	Z2 0	1:23	
		(7)LT safe 1	X2	2 Z2 0	0:04	
	X1 Y1 Z1 Z- B C -5-		X	2 Z2 C1	- 5 -	1
(8)i3DRough_model_UP_TR-1A_(T11)	X1 Y1 Z1 Z B C 3:01					
(9)5X ParC faces UP TR-1A (T12)	X1 Y1 Z1 Z- B C 0:05					1
(10)5X ParC faces3 UP TR-1A (T12)	X1 Y1 Z1 4- B C 0:05					
(11)F contour4 UP TR-1A (T13)	X1 Y1 Z1 4 B C 0:15					
(12)F contour5 UP TR-1A (T14)	X1 Y1 Z1 7 B C 0:11					
(13)F contour6 UP TR-1A (T15)	X1 Y1 Z1 Z- B C 1:36					
(14)F contour6 1 UP TR-1A (T16)	X1 Y1 Z1 4- B C 0:11					
(15)B home	X1 Y1 Z1 Z- B C 0:02					
•	X1 Y1 Z1 B C1 -6-		X2 Z2	Z[C	- 6 -	
		(17)Transfer	X2 Z2	21 C	0:03	-
		(18)TR_conto 7 LW_ Add new Workpiece (it's mach	ining starts fro	om here)		
		(19)TR_contor 7_1 L' Operation duration				
		(20)DRILL_3 W_TR-on (10)				
		(21)LT safe_2	X2 Z2	4- C	0:04	
• 	X1 Y1 Z1 Z- B C1 -7-	•	Xz	? Z2 C	- 7 -	-1
(22)DRILL_4 UP_TR-1A (T17)	X1 Y1 Z1 Z. B C1 0:14					-1
(23)B home_1	X1 Y1 Z1 Z- B C1 0:03					4
(24)D_drill UP_TR-1A (T18)	X1 Y1 Z1 Z- B C1 0:03			+	<u> </u>	4
(25)D_drill_1 UP_TR-1A (T17)	X1 Y1 Z1 Z- B C1 0:09			+		4
(26)F_contour8 UP_TR-1A (T11)	X1 Y1 Z1 Z- B C1 0:13			+		-
(27)HSS_ParC_faces1 UP_TR-1A (T19)	X1 Y1 Z1 Z- B C1 2:54			+	<u> </u>	4
(28)F_contour11 UP_TR-1A (T16)	X1 Y1 Z1 Z- B C1 0:08					4
(29)P_contour13 UP_TR-1A (T20)	X1 Y1 Z1 Z- B C1 1:45			+	<u> </u>	4
(30)TR_contour14 UP_TR-1A (T21)	X1 Y1 Z1 Z- B C1 1:58			++	<u> </u>	-1
(31)BS for 5x	X1 Y1 Z1 ZL B C1 0:03					4
(32)5X_ParC_faces2_UP_TR-1A_(T11)	X1 Y1 Z1 Z- B C1 0:16					-
(33)RST	X1 Y1 Z1 ZL B C1 0:02			++		4
	X1 Y1 Z1 Z- B C1 -8-		<u> </u>	? <u>Z2 C</u>	- 8 -	1
· · · · · · · · · · · · · · · · · · ·						
machining time: 00:22:31	Selected operation machini	ng time: 00:02:18				

- <u>Add New Workpiece</u> to define multistock work process and provide synchronization between operations
- Possibility to emulate the machining of several workpieces on different tables simultaneously





Channels Synchronization : Clash reports visualization

i == == ≱ × × × ∅ @	×					-	 ■)(3				
UP_TR								LW_TR				
•)	$\alpha \gamma$	/ <i>Z</i> 1	Z[В	С	- 1 -	• • · · · · · · · · · · · · · · · · · ·	x	2 Z2	C1	- 1
(0)Setup	2	(1 Y)	Z1	Z[В	С	0:01	(b) (18)TR_contour7 LW_TR-1A (T1)	x	2 Z2	C1	2:
								(b) (19)TR_contour7_1 LW_TR-3A (T4)	x	2 Z2	C1	0:
								(20)DRILL_3 LW_TR-8A (T9)	x	2 Z2	C1	0:
								(21)LT safe_2	x	2 Z2	C1	0:
•)	(1 Y1	Z1	Z[В	С	- 2 -	• • • • • • • • • • • • • • • • • • •	X	2 70	≥ C1	-
(22)DRILL_4 UP_TR-1A (T17)	>	(1 Y1	Z1		В	C1	0:14	(b (1)TR_contour1 LW_TR-1A (T1)	x	2 Z2	C	1:
(23)B home_1	>	(1 Y1	Z1		В	С	0:03					
(24)D_drill UP_TR-1A (T18)	>	(1 Y1	I Z1		В	C1	0:03					
(25)D_drill_1 UP_TR-1A (T17)	>	(1 Y1	Z1	Z[В	C1	0:09					
•	(C) >	1 Y1	Z1	Z[В	d,	Control ove	r Axis 'C1' is in Channel 'LW_TR' (Label -2-).	x	2 Z2	C1	-
(2)TBR_contour2 UP_TR-1A (T2)	(c) >	(1 Y1	Z1	Z[В	C	2:41	(2)TBR_contour2 (Slave) LW_TR-1A (T1)	x	2 Z2	C	2:
•	2	a ri	1 Z1	Z[В	C1	- 4 -		x	2 Z2	С	-
(26)F_contour8 UP_TR-1A (T11))	(1 Y1	I Z1	Z[В	C1	0:13	(3)DRILL LW_TR-2A (T3)	x	2 Z2	С.	0:
(27)HSS_ParC_faces1 UP_TR-1A (T19))	(1 Y1	Z1	<i>Z</i> [В	C1	2:54	(1) (4) DRILL_1 LW_TR-4A (T5)	X	2 Z2		0:
(28)F_contour11 UP_TR-1A (T16))	(1 Y1	I Z1	Z[В	C1	0:08	(5)DRILL_2 LW_TR-6A (T7)	x	2 Z2		0:
(29)P_contour13 UP_TR-1A (T20))	(1 Y1	I Z1	Z[В	C1	1:45	(b) (6)TR_contour2 LW_TR-3A (T4)	x	2 Z2	. C	1:
(b) (30)TR_contour14 UP_TR-1A (T21))	(1 Y1	Z1	<i>Z[</i>	В	C1	1:58			_		
-)	(1 Y1	Z1	Z[В	C1	- 5 -		x	2 Z2	С	-
(31)BS for 5x	>	(1 Y1		Z[0:03	(7)LT safe_1	X	2 Z2	C	0:

- Problematic places (axis, drive unit, operation cells) filled by red color
- When selecting an operation, an arrow points to the operation/axis/drive unit that caused the problem to appear

🛃 🔁

• Floating tip with explanation

evolutionary Milling Technology



Channels Synchronization : Functional toolbar improvement







Channels Synchronization : Time mode

UP T	R							LW TR			
7								(m) (18)TR_contour7 LW_TR-1A (T1)	X2	Z2 C1	2:18
								(b) (19)TR_contour7_1 LW_TR-3A (T4)	X2	Z2 C1	0:56
2				77	-			(to (1)TR_contour1_LW_TR-1A (T1)	X2	Z2 C	1:27
De (2)TBR_combur2 UP_TR-1A (T2)	(c) ×	I Y1	Z1	<i>Z</i>	в	С	2:41	(2)TBR_contour2 (Slave) LW_TR-1A (T1)	X2	Z2 C	2:41
(27)HSS_ParC_faces1 UP_TR-1A (T19)	x	1 Y1	Z1	 Z[В	C1	2:54	(((b) (6)TR_contour2 LW_TR-3A (T4)	X2	Z2 (C)	1:23
(29)P_contour13 UP_TR-1A (T20)	x	1 Y1	Z1	<i>Z</i> [в	C1	1:45				
7 ((30) TR_contour 14 UP_TR-1A (T21)	x	1 Y1	Z1	<i>Z</i> [в		1:58				
機(的)3DRough_model UP_TR-1A(T11)	×	I Y1	Z1	7 2	B	c	3:01				
? (词 (13)F_contour6 UP_TR-1A (T15)	×	I Y1	 Z1		B	- C	1:36				

- Preview of operations in real time mode
- Impossible to change synchronization labels and operations order – it's only preview mode



Channels Synchronization : G-code

X 26.8582	Name	Main Linear	Back	Aain Rotary
Y 18.2528	Output Gcode Channels	Mixed on Single File	Mixed on Single File	Mixed on Single File
A -51.5791 Goode Output	Gcode File Extension	tab	tab	tab
C 29.1170 Program Number	Code File Name Format Program Number Program Numbers Code File Name Format Gcode File Name Max Length G Gcode Folder Channel Synchronization	Program Number	Program Number	
		6		
iMachining	Allow Spaces in Gcode File	NO	NO	NO
Sim 5y Ontions	Separate Folder For Each Gcode File	NO	NO	NO
	Separate Folder For Each CAM-Part NO NO	NO	NO	
	Split Gcode	NO	NO	NO





Channels Synchronization : Machine Simulation



• Machine simulation of synchronized machining process (all other simulations execute operations in CAM-tree order)



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What's New in SolidCAM 2016







Turning: Changes in compensation



Optimized (less movements) entrance to compensation in turning operation



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Turning: Standard Chuck definition

Name:	*]	Name:	*
clamping fixture	•		clamping fixture2	•
Show	N		Sho	w
Defined by	*]	Defined by	*
Chuck (Standard)	•		Chuck (Standard)	•
Clamping method]	Clamping method	*
Main	🔘 sub		Mirrored	
Chuck position	*]	Chuck position	*
Clamping diameter (CD):	102		Clamping diameter (CD):	35.094
Axial position (Z):	-113.5		Axial position (Z):	-67

Change in interface defining the orientation of polyarc (radio buttons replaced by checkbox)





Geometry: Enhanced geometry extension options



More flexible extension of the geometry by 2 segments on both sides of the polyarc





Turning: non-kinematic tool orientation definition inside the operation

Technology	Operation name		Template	
Turning 📑) Back Rougth	•	🚽 🖻	
Geometry	Tool Data Origin posit	ion Coolant Tool	change position	
	Number:	33		
🖮 🖶 Misc. parameters	Tool orientation:	Right	il t	
	Turret:	TR1	-	
	Station/Position:	1A		
	Safety angle:	0		
	Safety envelope:	0	Additional angle:	0
	Setup angle:	0]	
	Position in Multi-tool holder	: 0	Spin direction	O COW
A 41		-	X output X +	© x-
	<u></u>			📑 📑 🚽



- Tool orientation inside the operation is changed to a classic turning representation (not according to the actual tool position in the machine)
- Actual tool orientation is visualised in Machine Preview dialog available from within the Operation
- X output (+ or -) and Spin direction are now connected





Turning: Reference diameter

Turning Back Rough Back Rough Image: Colored to a colored to colored to a colored to colored to colored t	Technology	Operation name Ten	nplate
Geometry Tool Levels Technology Link Misc. parameters Feed Feed normal: 0.1 Base of the points Safety parameters: 1 Offsets Tool offset number: 1 Pick feed points Pick feed points	Turning 🔿	Back Rougth 👻	
Link Misc. parameters Misc. parameters Misc. parameters Feed normal: 0.1 Feed finish: 0.05 Safety parameters: Safety angle: 0 Offsets Tool offset number: 1 Pick feed points Pick feed points (Unit) (V (m/min) 1000 103.968 Gear #1(0-99999rpm, 15kW) • Spin finish © S (rpm) (V (m/min) 1000 103.968 Gear #1(0-99999rpm, 15kW) • Auto Gear-switching Reference diameter: 33.094 Min. Spin (rpm): 0 Max. Spin (rpm): 99999 V[Stay in gear limits]	Geometry Cool Cool Cool Cool Cool Cool Cool Coo	Tool Data Origin position Coolant Tool chang	ge position Spin Spin rate Spin rate
Feed finish: 0.05 Safety parameters: 0 Safety angle: 0 Offsets 0 Tool offset number: 1 Pick feed points 99999	→ Link → Misc. parameters	 F (mm/min) F (mm/rev) 	1000 103.968 Gear#1(0-99999rpm, 15kW) ▼
Safety parameters: 0 103.968 Safety angle: 0 0 Offsets Auto Gear-switching Tool offset number: 1 Pick feed points 0		Feed finish: 0.05	Spin finish S (rpm) V (m/min
Offsets Image: Construction of the sector of the secto		Safety parameters: Safety angle: 0	1000 103.968 Gear # 1(0- 99999rpm, 15kW) ▼
Offsets Min. Spin (rpm): 0 Tool offset number: 1 Max. Spin (rpm): 99999 Pick feed points Stay in gear limits			Reference diameter: 33.094
Pick feed points		Tool offset number:	Min. Spin (rpm): 0 Max. Spin (rpm): 99999
		Pick feed points	▼ <u>Stay in gear limits</u>

- For V (m/min) spin definition reference diameter added.
- Spin for smaller/ larger diameter is calculated accordingly





Turning: Stay in Gear limits

Technology Turning 🔿	Operation name	iemplate	
Geometry	Tool Data Origin position Coolant Tool char Feed F (mm/min) F (mm/rev) Feed normal: 0.1 Feed finish: 0.05 Safety parameters: Safety angle: O Offsets Tool offset number: Pick feed points 	ange position Spin Spin rate S (rpm) 1000 103.968 Gear # 1(0-999999rpm, 15kW) Spin finish S (rpm) V (m/min 1000 103.968 Gear # 1(0-99999rpm, 15kW) Auto Gear-switching Reference diameter: 33.094 Min. Spin (rpm): Max. Spin (rpm): 99999 V Stay in gear limits	Two options to define spin limits: • Take values from the selected Gear automatically • Enter the values manually
6 6 6 6	€01 G0% 600 G00	6* 6* - 2	





Turning: Spindle direction shown in Machine Preview



Spindle direction represented as blue arrow wrapped around spindle axis.





Turning: Import Envelope from Sketch



Instead of modifying your CAD model, you can modify the section sketch from which the target envelope is generated and then synchronize those changes.

This option is useful for tolerancing and dimensional changes.

Note: When using this option, associativity of the envelope sketch with the Target model is lost.



(-) Clamp



What's New in SolidCAM 2016

Machine Simulation





MachSim: Redundant stock after CutOff



In new version the piece of stock remaining after the CutOff operation is deleted automatically or stays in previous table





MachSim: Automatic Quality Improvement



General Collision Control Layout Colors			
Directory for Machine simulation definition			
C:\Users\Public\Documents\SolidCAM\ Browse Browse			
Tool path coordinates			
Display in simulator: Part based coordinates			
Solid verification			
Enable verification			
Automatic Quality Improvement			
Target loading			
With CAM tolerance			
\bigcirc With CAD tolerance (fast loading/rough target)			
Environment			
Home Reference Show Last Axes values			
Adjust Stock mesh quality during Run			
High Low			



- On the fly display refinement for realistic display of Cut Stock
- Works quietly in the background when no other process is running




What's New in SolidCAM 2016







Summary of new features

- Optimized finishing of 2.5D features
- Automatic removal of material left by predrill tip
- Fixture avoidance in iMachining 3D











New and Improved Technology types



New and Improved Technology types:

- iRough + iFinish
- iFinish





Programming made simple with iMachining



Combined functionality automates the machining process:

• iRough + iFinish

• Suitable for prototyping and the machining of soft materials, where a single tool can be used for roughing and finishing

• iFinish

- Suitable for high quantity runs and the machining of hard materials, where a separate tool is used for finishing the floor and walls
- Finish after finish (using iFinish)
 - Finishes only the necessary areas where previous tools cannot fit





Common challenges of traditional machining



Total number of operations in this example (10+)

- Time intensive when optimized tool path is desired
- Operations often omitted and shortcuts taken (e.g., avoid pre-finishing the corners to 0 at walls by increasing number of step downs during wall finish)
 - Reduces programming time and over engagement of the tool in the corners
 - But increasing the number of step downs is likely to increase overall cycle time

Omitted operations are suppressed in this example





Common challenges of traditional machining (cont.)

est options	Constato staso			Tedious m	9
Milling type:	Separate areas				
Previous	S Well offerste	0.225		 Entering 	1
	wall offset:	0.225		Littering	
Previous	Floor offset:	0	_	(i.e. edi	Fi
Extension/Over	Offsets			(iici) cui	
Extensionyove	Geomet	ry Preview			
Feed:	Wall /idaod	offect: 0.15		• Custom	S
Rest		0.15			
Destaur	Unsets		0.75		
Rest options	VVa	all offset: 0.	.075		
Milling type:	Flo	or offset: 0			
		Offsets			
Previous tool	diameter	Wall offset:	0.3		
Previous wall	offset:	Eleon offset	0		
-0	Offsets	Hoor offset.	-		
Extension	Geometry	Preview			
Feed:			Offeete		
	waii offset:	0.15	Geo	metry Preview	
	Island offset	. 0.15			
	Floor offset:	0	Wall / is	land offset: 0.3	
	ineer eneed				
	Offsets		Floor of	fset: Offsets	
	Offsets	Geometry Pr	Floor of	fset: Offsets Geometry F	re
	Offsets	Geometry Pr	Evi 0.15	fset: Offsets Geometry F Wall offset:	re 0.:
	Offsets Wal Floo	Geometry Pr I / island offset: or offset:	Evi Floor of 0.15	fset: Offsets Geometry F Wall offset: Island offset:	Pre 0.

edious manual efforts are typically required such as:

- Entering and tracking of offsets and rest material data (i.e., editing an operation affects all related ones)
- Custom sketch geometry often needed





Common challenges of traditional machining (cont.)



Inherent problems that are difficult to avoid without manually optimizing tool path:

- Tool plunges on stock when finishing
- Uncontrolled tool load when cutting in corners
- Air cutting when working in tight areas/corners









iRough + iFinish: Single tool with a Contour style floor finish



Optimized roughing and finishing tool path in just one operation (used for prototyping and the machining of soft materials)







Roughing with three separate tools used for finishing



Optimized roughing, rest roughing and finishing tool path in three operations, where three tools are needed (used for high quantity runs and the machining of hard materials)







iMachining enhancements: Floor finishing styles











iMachining enhancements: Cutting direction styles

On
Advance
aview
0.3
0.3
ur 🔻
. 15
down : of chain
:

Climb / Conventional styles with trochoidal-like tool path in corners



Zigzag tool path in corners







iMachining's finish feeds and speeds

nology	Operation name		Template	Wiz
iRough + iFinish 🔻	iRough_iFinish_contour	-		II 🖳 🔲
Geometry	Tool Data Coolant	Tool change position	n]	
Levels	Feed		Spin	
Technology Wizard	F (mm/min)	FZ (mm/tooth)	S (rpm)	🔘 V (m/min)
Technology	Feed XY:	2856	📋 Spin rate	
Link	Fred Wy menu		10539	98.9602
Motion control	reed XT max:	2912	Gear1(0-1200	00rpm, 15kW) 🔻
 Misc. parameters 	Finish feed XY:	1694	Spin finish	
	Feed Z:	3000	9902	279.972
	Feed helical:	2142	C===1(0, 1200	20
	Feed reposition:	10000	Gear1(0-1200	Jorpm, 15kvv) 👻
	recureposition.		Spin helical	
	Feed floor:	622	7905	223.509
			Gear 1(0- 1200	00rpm, 15kW) 👻
	Offsets		Spin floor	
	Diameter offset nu	mber: 1	10030	283.592
	Length offset num	ber: 1	Gear 1(0- 1200	00rpm, 15kW) 🔻
			Spin direction	© ccw
				0.000

- Full control in one operation includes Wall and Floor
- Automatically calculated by the Technology Wizard
- Override check boxes available if you have preferred values for finishing





iMachining's associativity of data

	iRest Data
	Rest parameters
1	Parent operation: Rough_contour_Ex2
1	Previous tool diameter:
1	Previous wall offset: 0.3
	Offsets Geometry Preview
	Wall / island offset: 0.3
	Floor offset: 0.3
	Finish
	✓ Floor
	Style: Contour 🔻
	Overlap %: 50
	Wall
	Offset: 0.15
	Offsets
	Geometry Preview
	Wall / island offset: 0.3
	Floor offset: 0.3
	Finish
	Floor
	Style: Contour V
	Overlap %: 50

Operations that share a single geometry are linked when using Save & Copy:

- If any settings are changed in the 1st operation, sequential ones are automatically updated
- Offsets inherited and iRest Data managed between operations
- Intelligent Finish technology eliminates all air cutting
 - If floor finishing is not detected in the 1st operation for example, the Floor option is enabled in the next operation
 - If floor finishing is detected in the 1st operation for example, then:
 - the Floor option is disabled in the next operation when using the same size tool
 - the Floor option is enabled in the next operation when using a smaller tool





iMachining's optimized rest roughing and finishing tool path

Automatic tangent tool path extensions so tool never plunges on stock





Tool automatically stays away from walls when finishing the floor





Predrilling data in iMachining 2D



When predrilling data is defined, the entry tool path can now perform one of the following:

- Automatic removal of drill point using a helical move where drill tip terminated at pocket floor
- Vertical feed down to the bottom of the pocket floor where a through hole was predrilled





Fixture collision protection in iMachining 3D



Tool path is automatically adjusted to avoid contact between your defined setup and the selected tool







Precision machining with iMachining 2D



High accuracy can be achieved for:

- Circle milling bored holes
- Tight tolerance pockets



Use Semi-finish with Spring Pass





What's New in SolidCAM 2016







2.5D Milling: Compensation for Rough, Finish and Clear Offset separately

Technology Profile	Operation name F_contour3	Template		
Geometry Tool Levels Cechnology Link Motion control Misc. parameters	Technology Advanced Modify Tool side: Left Compensation Ignore self-intersection on open contours Compensation on rough passes Compensation on Clear offset passes Compensation on Clear offset passes Depth type Constant Opeth cutting type One way Zigzag Rest material\Chamfer None Use fillet size for last cut Internal: O	Offsets Wall offset: Floor offset: Equal step down V Rough Step down: Finish Number of passes: Extension/Overlap: Step down: Combine Wall and Floor Combine Wall and Floor Clear offset Offset Step over: Offset Step over: One way Complete Z-level	0.5 0 1 1 0 0 finish passes 10 2 Sort by chains	Possibility to turn on compensation separately for Rough, Finish and Clear Offset passes.



2.5D Milling: Variable Depth in Profile

Section Profile Operation			? ×	ſ	💩 Depths		8 ×	
Technology	Operation name	Template			Chain	Depth	Delta	
Profile	F_contour 14	▼ Profile_10mm.tmpl**			2-Chain	30	0.000	
Geometry Col C	Positioning levels Start level 1 Clearance level 1 Safety distance: 2 Milling levels 0 Depth 1 Variable depth Variable depth	Delta: 0 Delta: 0		~~	Cox 4-Chain	40	0.000	
		Depth The second	Delta: 0	Possib for ea	oility to ch profi	define ile cha	e variou iin	s depth
	€01 G0% G00 G00		6* 6* -2	_				





2.5D Milling: Variable Levels in Pocket

b Pocket Operation			? ×	ſ	🂩 Levels				? X
Technology Pocket	Operation name	Template I i i i i i i i i i i i i i i i i i i i	🗉 🚇 🍢		Chain	Upper level	Upper lev	Depth	Delta
Geometry Tool Cecels Technology Link Sy Motion control Misc. parameters	Positioning levels Start level 25 Clearance level 25 Safety distance: 2	Delta: 0 Delta: 0 Variable levels		~	2-Chain	0.000	о.000 0.000	5.000 5.000	0.000
P	Equal step down Step down: 5	Milling levels							
		Upper level 0 Pocket depth 1	Delta: 0 Delta: 0	P u p	ossibi pper l ocket	lity to evel a chair	o defii and de n	ne va epth	rious for each
8666	601 G00 600 G00		6* 6* - 2						





2.5D Milling: Combine Wall and Floor finish passes

Profile	Operation name F_contour3	Template			
 Geometry Tool ↓ Levels Technology Link Motion control 	Technology Advanced Modify Tool side: Left Geometry Ignore self-intersection on open contours	Offsets Wall offset: Floor offset:	0.5	Combine wall passes to one	and floor offset pass
	Compensation on finish passes Compensation on Clear offset passes Compensation on Clear offset passes Depth type Constant Depth cutting type ③ One way Zigzag Rest material\Chamfer None Use fillet size for last cut Internal: 0 External: 0	Complete Z-level	2 1 0 0 fnish passes 10 2 Zigzag Sort by chains	Combine Floor and Wall finish passes	Combine Floor and Wall finish passes $6 + 1$ 7 + 2 8 + 3 9 + 4 10



iMachining – The Revolution in CAM

Pocket Recognition: Limit the machining depth

Fechnology Pocket Recognition	Operation name		
 Geometry Tool ↓ Levels Technology Link ↓ Link 	Positioning levels Start level 25 Clearance level 25 Safety distance: 2		Limit the depth of cutting in Pocket Recognition operation
Misc, parameters	Milling levels Upper level 0 Delta: 0 Lower level -75.8491 Delta: 0 GEqual step down Adaptive step down Max step down: 0		
	601 60 [®]	6 7 3	



The Revolution in CAM

2.5D Milling: Lead in/out radius in % of tool diameter

Profile	Operation name F_contour	Template ▼ ■ ■	🗉 🤮 🍢	
Geometry 	Ramping Feed	Links between passes through Clearance level separate areas thro Clearance level	v ugh	
 Misc. parameters 	Lead in Arc 🗸	Lead out	ead in	Possibility to define lead in radius and lead out radius no
	Tangent extension: 0	Tangent extension:	0	only in him/ inch, but also in
	Radius(% of tool D): 🚟 🌋 60	Radius(% of tool D)	% (%) 60	of tool diameter.
	Arc angle: 90	Arc angle:	90	
	O Distance: O.2	9 Distance:	0.25	
	Center	Center		
R	Start from center of circle geometry	Start from center of c	ircle geometry	
	Adjacent passes	connection		
	Linear	· · ·		





Face Milling: Auto definition of geometry



Facemill geometry of the Target is automatically defined when creating a new Face Milling Operation, to speed up programming.





ToolBox cycles: New approach option

loolBox cycles operation			8 ×	
Technology	Operation name	Template		
Closed Slot	TBX_CLS_contour			
Geometry Tool Levels Technology Motion control Misc. parameters	Pre-Drilling Vuse Pre-Drilling Operations Drill operation Tool Diamet V D_drill2 12	er Drill positions	Y 19,519	Previous drill operations can now be defined as approach in slot operations using ToolBox cycles for: • Closed Slots • Additional Zigzag Slots
6 6 6 6	601 G0 G00 G00		F F Đ	





Modify Geometry: Visual feedback and tooltip for offsets



Enhanced visual feedback:

- The pencil icon now represents a positive or negative offset on the geometry
- A tooltip is now shown to give detailed information on each chain's offset





CAM Settings: Control over Lead in/out defaults

User directories	Milling			
Default CNC-Controller	Face Face-Contour Profil	Pocket	3D contour 3D contour-Cente	r • •
GCode	Lordin		Lood out	
GCode Simulation	Lead in		Leau out	
CAM-Part			Same as Lead in	
Automatic CAM-Part defi	Arc		Arc	
CoordSys definition	AIC T		AIC	
	Tangent extension:	0	Tangent extension:	0
Cleanup CAM-Part	(K		Re	
Tool path simulation	Radius(% of tool D): 🔤 🏾	60	Radius(% of tool D): 🔤 🍱	60
Machine simulation	Arc angle:	90	Arc angle:	90
□ Defaults				
Geometry	O Distance:	0	O Distance:	U
Names	 Center 		Ocenter	
Spin and Feed				
CAM-tree	Start from center of		Start from center of	
Link	Circle geometry		arde geometry	
CAM Messages				
Template				
Tolerance				
Machining Process/Hole Wiza				
Tool Toble				
Transformation				
Documentation/Help	1			
iMachining				
Parallel Operations				
Channel synchronization				
📙 🗈 📬 🗐			OK Canaal	

For each operation type, you can define the default parameters of the tool link movements.





What's New in SolidCAM 2016







Geometry: Show Chain On Work Plane



• Shows the chain projected to the XY plane (the way it will be used in the operation)





Geometry: New Propagation options



Automatic propagation of a chain :

achining

- Along the CAM-part edges in Z plane (within the defined tolerance)
- Along edges tangential to the previously selected one



Geometry: New Buttons for faster chain selection



When there are several edges suitable for selection – user needs to choose which one

- button to continue automatic selection process
- button for direction selection

chining



Geometry: Hot keys associated to chain buttons



Process of defining chains is simplified with hot keys:

- Add Selected Element uses F6 hot key
- I Change Direction uses F7 hot key
- 🍢 Reverse uses F8 hot key
- 🧐 Undo step uses Backspace hot key





Geometry: Next Chain Creation



The unique, revolutionary Milling Technology

Geometry: Control over chain selection defaults



Possibility to define in settings which options are active by default.





Geometry: Preview of holes numbers in drill geometry



Better visualisation of defined holes and easier matching with the list of drill points.




Transformation





Transform: Selection of custom transformation direction (CoordSys)





Transform: Selection of custom transformation direction (Vector)



Use custom axes for definition of transformation directions





Transform: Mirror



Keep cutting direction (climb/conventional)





Transform: Mirror



Additional CoordSys can be created if necessary





Transform: Equal spacing in Rotate transformation



Transform: Pick matrix step from the model

MAC 1.1

 Pick the point where the start of first chain of the transformed operation's geometry should be → it is taken as a step in Matrix transformation

:hining



Hole Wizard





Hole Wizard: Separate folder



Separate folder for Hole Wizard Machining Process files





Hole Wizard: Customization

nining Process list		MP Picture	Current expression set	Used parameters	
	Type		Line.	Parameter Expression	
Tanned Holes	Tapped Holes			Tapped Holes	
Counterboro Holes	CounterPar		Operations [Tapped Hole	spot_drill_diameter IF Spot_Drill_Chamfer_Diameter <= 5	THAN 6 ELSE_IF Spot_Drill_Cha
Counterpore Holes	Countersiek		tion 1 ⊕	F Spot_Drill_Angle IF HW_NearCounterSinkAngle > 0 TH	AN HW_NearCounterSinkAngle E.
	Countersink		Tool 2	F Spot_Drill_Arber_Diameter spot_drill_diameter	
simple holes	Simple Holes		🖬 😍 Tap Drilling	V Spot_Drill_TL IF Spot_Drill_Diameter <= 10 THAN S	pot_Drill_Diameter*14 ELSE_IF S.
				Spot_Drill_OHL IF Spot_Drill_Diameter <= 10 THAN S	pot_Drill_Diameter*10 ELSE_IF S.
			tapping	Spot_Dril_SL IF Spot_Dril_Dlameter <= 10 THAN S No	Hole Wizard Parameters
		1		۲ III	
		December MD Diet and		Unused parameters	Z_Level_HoleDiameter_upper_Z
		Browse MP Pictures	• • • • • • • •		Z_Level_HoleDiameter_lower_Z
		Type	Operation templates Default Sets	Parameter Expression Result value	Z_Level_MidCounterSinkDiameter_upper_Z
		Tapped Holes		Tap_Drill_Peck_Depth Tap_Drill_Diameter*.3	Z_Level_MidCounterSinkDiameter_lower_Z
		rapped noies	MP Picture		Z_Level_NearCounterSinkDiameter_upper_Z
					Z_Level_NearCounterSinkDiameter_lower_Z
		Description		Add new parameter	7 Level ThruHoleDiameter Jower 7
				Type: 🖉 Float 👻	Z_Level_FarCounterSinkDiameter_upper_Z
				Name:	Z Level FarCounterSinkDiameter lower Z
' 🗐 🔂 💎 🗶					Z Level TapDrillDiameter upper Z
					Z_Level_TapDrillDiameter_lower_Z
		Add Machine Save Evit			Z_Level_ThruTapDrillDiameter_upper_Z
				Expressions Save Save & Exit Exit	Z_Level_ThruTapDrillDiameter_lower_Z
					HW_holeDiam
					HW_counterboreDiam
					HW_counterboreDepth
					HW_holeDepth
· Now Actions	Iroardar a	any out nos	ta) addad ta th	a tabla of	HW_counterSinkDiam
 New Actions 	(reorder, c	opy, cut, pas	ie) added io in		HW_counterSinkAngle
		1 11 11	•		HW_InruHoleDepth
Machining Pr	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				7 Lovel CounterPereDiameter upper 7
i viaci i i i i i i	0003303				Z_Level_CounterBoreDiameter_lower_Z
					7 Level CounterSinkDiameter upper 7
					Z Level CounterSinkDiameter lower 7
, ivpe of noies	s tuters the	list of availa	die Hole wizar	o parameters.	7 Level HeadClearance Upper 7

ichining

Hole Wizard: Enhanced User Interface

\$	Machining Process Table Manager		? ×			
	nachining Freezo Int		MP Picture	1	b Define Hole Wizard data	2 ×
	Name	Туре				щ і -
	Tapped Holes	Tapped Holes			The Database: HOLE PROCESSE	S - SOLIDWORKS HOLE WI
	Counterbore Holes	CounterBor			HOLE PROCESS	ES - SOLIDWORKS HOLE WIZARD - METRIC
L	Countersink Holes	Countersink			CoordSys MAC 1 (1- Position)	•
	Simple Holes	Simple Holes				
L					Tapped Holes	1: Spot Drill 2: Pre-Tap Drill 3: Tap
			Browse MP Pictures		Counterbore Holes	1: Spot Drill2: Drill3: End Mill4: Spot Drill (Mid Chamfer)5; Chamfer Mill (Top Chamfer)
			Type Tapped Holes		Countersink Holes	1: Spot Drill 2: Drill
			Description 1: Spot Drill		Simple Holes	1: Spot Drill 2: Drill
			2: Pre-Tap Drill			
			la con		Cancel	
			Add Machine Save Exit			
				1		

- Combo box of Databases contains only DBs compatible with current machine (= have the same Drilling cycles)
- Description is added in order to make selection of the Machining Process easier





Sim 5X & HSS





Incremental Clearance Plane

Regular Advanced	☑ Advanced
Clearance area	Levels
Type: Plane	Retract distance 20
◯ In X	
◯ In Y	Entry safety distance 2
In Z	Exit safety distance 2
OUser-defined direction	
$dX = \begin{bmatrix} 0 \\ dY \end{bmatrix} = \begin{bmatrix} 0 \\ dZ \end{bmatrix} = \begin{bmatrix} 1 \\ dZ \end{bmatrix}$	Rapid retract
Plane height 25	
Incremental height 150	
 Traversing type for incremental height 	
Step Direct	

- Internal moves can now use an Incremental plane rather than Clearance plane
- Moves can be directly linked or linked through step







Tangential Extensions





Extension in 2015 Along Cutting Direction New Extension in 2016 Across cutting direction

- Toolpath can now be extended in both directions
- No need to create physical extension of surfaces to extend toolpath





Gouge Check – Retract Along Tool Plane



• New option to move tool away from Collision zone in a direction orthogonal to tool axis





Mirror Toolpath

	🗹 Advanced		Toolpath mirroring
Multi-passes	Plunging		Vuse toolpath mirroring Orientation
Depth cuts	Morph pocket		Axis/Direction User-defined User-defined Base point X-Axis Y-Axis Y-Axis
Rotate&Translate	Area roughing	Toolpath mirroring	Z-Axis
Stock definition	Sorting	Vientation Axis/Direction Y-Axis	
Mirror		Base point	
Links between passes	Don't use Lead-In/Out		OK Cancel
Large Clearance area 💌	Don't use Lead-In/Out		-
Small move as value: 10			
		OK Cancel	

• New option to mirror HSS & SIM5X toolpath around any selected axis





Max Step Angle – Rotation Axis

 When rotary or tilting is bigger than the max angle defined here, new points are added in between, in order to ensure that max angle is respected both for tilt angle and rotary angle







Sim 5X - Multiblade Machining





Blade Finishing - Swarf

Blade finishing MEL_B_f_foces3 MEL_B_f_foces3 MEL_	echnology	Operation name:	Template	
CoordSys CoordSys Tool Tool parameters Tool park parameters Tool parks control Unix Coorge check Clearance data Stock and Theoremethub and Shroud Shroud Tool parks to Shoud Margh between Hub and Shroud Shroud Show Hub Hub For Betug 2 Hub For Betug 2 Show	Blade finishing 🔹	MBL_B_F_faces3	a	🗉 🖳 🍢
III Image: Stock to leave on: 0 Show Show Stock to leave on: 0 Shroud Image: Stock to leave on: 0 Show Stock to leave on: 0	CoordSys Constay Tool add part parameters Tool add part part part part part part part part	Strategy Morph between Hub and Shroud Parallel to Shroud Morph between Hub and Shroud Morph between Hub and Shroud WARF Who have the shrout shr	Stock to leave on:	0
Shroud Shroud Show Show		faces1	Stock to leave on:	0
		Shroud faces2 • Show	Start offset:	0



- This strategy applies flank milling to finish the blade with a single cut
- Basic gouge check options are available to avoid gouging





Sim 5X - SWARF





Gouge Checking

SWARF Machining	121		9 X	SWARF Machining	P.	2-2 0 0 0 0 1 1 1	2
Technology	Operation name:	Template		Technology	Operation name:	Template	_
SWARF	SWRF_faces4	a	🗉 🏨 🏷	SWARF	SWRF_faces4	-	🔲 🌉 🎝
CoordSys Geometry Geometry Levels Tool ass control Tool ass control Tool ass control Misc perfault Lead-In/Out Goouge check Roughing and More Misc parameters Misc parameters For debug For debug 2	Degouging Guide curves only Collision Degouge Gouge allowance: 0.0 Excess material allowance: 0.0 Avoid by relinking 0.0	Check surfaces Check surfaces Check surfaces Check surfaces	¥	CoordSys Geometry Tool Tool path parameters Tool path path path path path path path path	Degouging Check Guide curves or Collision Swarf surfaces Swarf & addition Swarf & addition Swarf & addition Swarf & addition Swarf & addition Couge allowance: Excess material allowance: Avoid by relinking	hy to the surfaces to the surf	¥
	Check - Check faces clearance: 0	Show	· · · ·		Check faces clearance:	0 Show	*
	Avoid by retracting	Check surfaces			Check	Check surfaces	
	Check -	✓	▼				▼
	Check faces clearance : 0 Direction Along tool axis	Show			Check faces clearance: Direction Along tool axis	0 Show	
₽ ₽ ₽ " ₽ 	601 60® 600 600		et et - Ð	₽ ₽ ₽ ₽	601 60% 600 600		6* 6* -2

- New option for gouge detection Guide curves checking only
- Gouge check GUI is simplified and logical







MultiCuts – Follow Surface Topology



- The aim is to create multiple cuts that follow the actual curvature of the machining surfaces
- Main benefit will be the machining of convex shapes such as gear flanks or pressure sides from impeller blades.





Sim 5X - Port Machining





Clearance Area – Autodetect

Regular Advanced	☑ Advanced
Clearance area	Levels
Type: Cylinder Radius: 125	Retract distance 10
Parallel to X	
O Parallel to Y	
O Parallel to Z	
O Parallel to user-defined direction 🔊 🖉	
dX= 0 dY= 0 dZ= 1	
Through point	
y72.397 y_ 8.637 792.082	
Auto detect	
✓ Direction	
Point (Through point)	

 Auto detect the direction of Cylinder Axis , Radius on cylinder & axis center point for easy definition of retracts







Fillets during Retract





• Rounding of sharp corners in retracts for smooth machine movements





Roll Over Edge



- Edge rolling will create a tool path extension such that the tool approaches and enters the port smooth and gradual
- The flute cuts out material step by step from the tip and is not in full contact with the material on full diameter





MultiAxis Roughing





MultiAxis Roughing – Rest Rough



- This option calculates a tool path that will remove all the non-machined areas left by previous large roughing tool
- The rest roughing tool path is based on previous roughing tool diameter, radius and offset











Overlap Passes



• New parameter added to give a better quality finish as the entry and exit moves of individual passes are never coincident





Axial Overthickness



• Axial overthickness is an additional Vertical thickness added to the model. A negative value will cause the system only to preserve passes that are below the surfaces or stock model by the specified amount, while a positive value will select all passes that are within the specified distance from the surfaces or stock model.











CAM tree: Show machining time



unique, revolutionary Milling Technology



Show machining time in CAM tree



CAM tree: Show information about compensation usage



unique, revolutionary Milling Technology



Show indicator whether compensation is used in the operation or not



CAM tree: Change Submachine from the CAM-tree



Right click on the submachine item in the CAM tree allows to change submachine in all operation between selected submachine and the next one in the CAM tree



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CAM tree: Show updated stock





- Option to see rest material left after the last operation during new operations definition.
- Preview in CAD area
- Color and transparency are taken from Host CAD simulation settings




CAM tree: Rename CoordSys







CAM tree: Open Current CAM-Part folder





Reach the folder containing the current CAM-Part with a single click





What's New in SolidCAM 2016







Integration: More SolidWorks-integrated dialogs

💩 New Milling P	art	? ×							
Create CAM-Pa	Create CAM-Part								
CAM-Part/Mode CAM-Part CAM-Part n I Use Mod	I ame: GHD-7896-LR								
Directory:	D:_eSUPPORT\VNH-560051\Wew folde	Browse							
Model name:	D:_eSUPPORT\VNH-560051\New folde	Browse							
Units	Metric OK Cancel								

New Milling Part Create CAM-Part External (SolidCAM project *.PRT/*.P Internal (Inside SolidWorks Part Internal (Inside SolidWorks Part GHJ-5891.001-D Directory:	RZ)
Create CAM-Part External (SolidCAM project *.PRT/*.P Internal (Inside SolidWorks Part	RZ)
Create CAM-Part	RZ)
External (SolidCAM project *.PRT/*.P Internal (Inside SolidWorks Part *.SLDPRT/*.SLDASM) CAM-Part name: GHJ-5891.001-D Directory:	RZ)
Internal (Inside SolidWorks Part *.SLDPRT/*.SLDASM) CAM-Part name: GHJ-5891.001-D Directory:	
CAM-Part name: GHJ-5891.001-D Directory:	
GHJ-5891.001-D	
Directory:	
Directory:	
D:_eSUPPORT\VNH-560051\New fold	Browse
Use Model file directory	
Units	
Metric	
🔘 Inch	

Dialogs integrated in SolidWorks Feature manager:

- New CAM-part
- CoordSys Definition





CAM-Part Definition: Program Numbers in Table format

٩	Milling Part Data	: GEOMETR	IES	0	0
~	×				
CNC	Machine			^	-
	gMilling_Haas_S	S_3x	•	•	
Defin	ie			^	
	\checkmark	CoordSy	/5		
	\checkmark	Stock			
	\checkmark	Target			
Part	settings	Settings]	^	
Prog	ram numbers			^	
	Channel	Program	Subroutine		
	Program num	1000	2		Е
	4				
			,		

Program Numbers shown in a table view to support single and multi-channel machines.





Milling operations: Calculate with related operations



Option to calculate current operation and all following dependant ones



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Operations: Save & Exit button

b Turning Operation	ନ ଅନ୍ୟ
Technology Turning	Operation name TR_contour
Geometry - 17 Tool - 12 Levels - 12 Technology - 12 Link - 14 Misc. parameters	Geometry Output according to CoordSys MAC 1 (1- Position) • Submachine: Main Liner • Show Image: Show Image:
	Edit geometry Modify Geometry

Button to save operation and exit without calculation







Tooltable: Save Tooltable without closing







Tooltable: dY tool tip position shifting



In addition to dX and dZ values, now there is a possibility to define dY coordinate of tool tip in Station's CoordSys as well





Tooltable: "Rough" option to tooltable



Additional information in tooltable about tool for Rough machining only





Tooltable: Tools quantity information

Number 🔍 💌	T Rough	Station	Tool type 🖤	ID Num 🖤	Diameter 💌		Number Turret		Station/Position	ID number
1 Rotary(10/10/9							1 Liner		1 (lum1) •	
2		1A	END MILL		6 mm		Description			Color Mounting <<
4		4A	FACE MILL		12 mm					
5 10		3A	Ext. Turning							1
5 12		5A	Ext. Turning				Iopology Iool Data	Holder Coolant	I ool Preset	I ool Message
15		8A	END MILL		10 mm		Insert Shank			
16		9A	BULL NOS		6 mm		Unit		Nan	ne: CAAA 09T304
20		9B	Int. Turning				() mm	Ind	1	
24	R	2B	END MILL		6 mm					D
27	R	2D	TAPER MILL		12 mm		Insert Shape:	🔶 C (80deg)	• R	
28		2E	FACE MILL		12 mm	Þ	Clearance angle (B):	— , д	•	
2 Liner (7/6/5)							Tolerance:	A d=+/-0.025	m= 🕶	
ഇ		1A	Ext. Turning				Cross Section:	A	-	× y
3		2A	Ext. Turning				IC Dismeter (D):	00 (0.52mm)		~
¶ 5		4A	Ext. Groov				to biameter (D):	09 (9.52mm)	•	-
6		3A	ENGRAVING		4 mm		Thickness (T):	T3 (3.97mm)	•	
		7A	END MILL		2 mm		Corner radius (R):	04 (0.4mm)	-	
18		6A	ENGRAVING		4 mm		Cutting edge formation:	= E		
							Cutting edge direction:	→ R	- 1	
							Insert only			В
	III				4	-				

Information about the tools quantity in turret title row in the following format:

chining

#turretID TurretName (number_of_stations/mounted_tools/used_tools)

Tooltable: Import with Positioning Manager

٩			Import	from too	l tab	ole				_ 🗆 ×
C:\Users\Public\Documents\S	SolidCAM\SolidCAM201	ō\Tables\M	Library:	QUICKSTART				✓ Libraŋ	y type: TAB (*.TAB	3) 🗸
T T _x 🙀			F	Related machi	ne :				~	
Tool Number 💌	ID Nu Viser-def	ined 💌 📘	Number	Turre	t			Station/	Position	ID number
1 (0 TOOL RO	UGH MILL	2	N	Tool s	torage		/ 1	✓ A	0
2	END MILL		Descrin	tion					Color	
8 3	- TOOL DO		besenp	aon						Mounting <<
Z 4	b		l	mport tools					? ×	
5	Position of some	tools are already take	n/used							ol Preset Tool Message
	Define alternate	position/number.								
	Tool	No. Tu	rret	Station		Position		Overwrite		• •
	#1-Tool storage()	3 Sp	ndle 🔻	1 (Station_1) -	A	-	H		
	#2-1 ool storage() #2-Tool storage()	4 Sp	ndle 👻	1 (Station_1		A	-	H		+ +
	#4-Tool storage()	6 Sp	ndle 🔻	1 (Station_1	i 🕂	Ā	• •	H		
	#5-Tool storage()	7 Sp	ndle 🔻	1 (Station_1	5 -	A	-	П		
										2 h
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					C	ж	Cance	4	1.	(D)
				H lengt	h:		[100		
		_ >	Roug	jh Numbe	r of flu	ites:		2]	••1
⇒ ^{all} ⇔										QK <u>C</u> ancel
Import tools with tool	numbering	1								
Import tools with tool	positioning									

- Import with positioning is now an option when importing your tool (used to be CAM setting)
- A Positioning Manager dialog is shown to manage any conflicts with tools in your current part





Machining Process: Save As

Machining Process list		MP Picture
Name	Тур	
===DRILLING====		
tapping mm with cha	=	
🗮 tapping mm-chamfer		
🗮 tapping large mm with		
tapping large mm with		
tapping UNC-chamfer		
preperation for stand		ļ
preparation for flat b		Results MD Disk was
reamer		Browse MP Pictures
counterbore head		
====PROFILE====		
Profile with floor offs		
Profile-finish after cor		Description
•	•	
🕈 🗐 🔂 🕂 🔰	6	
	A	dd Machine Save 🔽 Exit

New option to do a Save As directly from Machining Process Manager.





CAM Settings: Default name for Setup

Default CNC-Controller GCode Simulation CAM-Part Automatic CAM-Part definition Study Sefinition Updated Stock Synchronization Oleanup CAM-Part Tool path simulation Machine simulation Defaults Coords simulation Machine simulation Defaults Coords search Cool range Toil rande Toil rande Toil rande Toil rande Toil rande Toil search Toil rande Transformation Documentation/Help Machining Parallel Operations Channel synchronization Intercepretational tool movement Miscellaneous Iteraperational tool movement	solidCAM Settings		ହ <mark>×</mark>
	Oefault CNC-Controller GCode GCode Simulation GCode Simulation GCode Simulation GOodSys definition GoordSys definition GoordSys definition GoordSys definition GoordSys definition GoordSys definition GoordSys definition Geanup CAM-Part GoordSys GoordSys	Geometry Other Setup Setup	Split
		(OK

New option to define a default name for the Setup.



