

GibbsCAM Rotary Milling and GibbsCAM 4-Axis Options

GibbsCAM 4th Axis Programming

Capitalizing on the ability to produce parts in a single setup and improve productivity without sacrificing floor space, simultaneous rotary milling provides a cost-effective way to expand the range of parts a shop can produce and win new business. Simultaneous rotary milling machines radial parts on a mill, mill-turn, or multi-task machine tool using the A, B, or C rotary axis.

To easily handle a wide range of rotary milling applications, GibbsCAM offers separate and complementary solutions for the machining of complex shapes that cannot be produced on a standard mill or lathe. GibbsCAM Rotary Milling is designed to easily accomplish common tasks such as threading, engraving or milling based on flat or radial geometry. GibbsCAM 4-Axis creates NC code for more complex rotary applications based on solid models such as camshafts and pockets or grooves with variable tapers on the floors and walls. These two options work great alone or use them together to address all your rotary milling needs. In addition, the GibbsCAM 5-Axis option can also be used for 4th axis programming. Refer to the GibbsCAM 5-Axis data sheet for additional information.

GibbsCAM Rotary Milling

Rotary Milling increases the productivity of GibbsCAM Production Milling with support for continuous rotary machining. Readily program rotary contouring, pocketing, threading, and engraving as wrapped tool path with continuous rotary motion. Capabilities also include face and OD milling for mill/turn and multi-task machines.

An ideal choice for threading, engraving and the machining of parts defined with flat geometry, such as roller dies or tool centerline grooves, Rotary Milling works best for parts which can be made with the tool on centerline. CNC Polar and Cylindrical Interpolation output is supported to produce optimal multi-revolution output on a single G-code line.

Wrap any shape or text around a cylindrical part via rotary axis interpolation. Start with flat geometry or text and then wrap it around a defined diameter or switch to radial mode to create geometry directly in its wrapped position. Rotary Milling works great for repeated patterns. Simply define the initial pattern and then enter the number of times to reproduce it around the diameter.

GibbsCAM 4-Axis

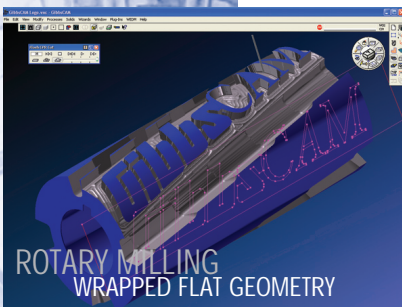
Offering a rich programming environment, GibbsCAM 4-Axis provides simultaneous rotary machining of 3D wireframe geometry, surfaces, solid faces or geometry extracted from solid models. With complete control over the cutting tool's orientations relative to the part, GibbsCAM 4-Axis supports off-center, Y-axis machining to ensure the integrity of straight or tapered walls.

Ideal for non-circular parts like cam shafts that require positioning moves as well as rotary motion, 3D geometry that wraps more than 360 degrees around the diameter, and parts with variable floor and wall tapers, 4-Axis works best with machines that have a Y-axis.

Cut with the side or the bottom of the tool for maximum efficiency. Use a surface or two curves to control the tilt of the tool or have the tool follow one curve at a user-defined lean angle. Progressive tool lean gives finite control over the tool angle from the start to the end of the cut. Create pocketing operations directly from cylindrical surfaces. There is no need to select geometry. 4-Axis is smart enough to keep the tool normal to the surface at the user-defined angular tolerance.

ROTARY MILLING
ROTARY POCKET

ROTARY MILLING
FEED RATE



4-AXIS
OFF-CENTER, Y-AXIS

4-AXIS
OFF-CENTER, LEAN

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GibbsCAM 4-Axis

Interface	Easily switch between simple position moves and continuous rotary motion. Quickly view flat geometry in its actual wrapped configuration around the center of rotation or create geometry directly in radial mode.	Multiple parameters provide full control over tool alignment, clearance planes, tool orientation, constant and variable depths of cut, and whether to cut shapes with the side or the bottom of the tool.
Geometry Definition	2D planar geometry, radial geometry and text. 3D geometry can be converted to flat/radial geometry.	3D geometry extracted from a solid model, surfaces and 3D radial geometry. 2D geometry is not supported.
Part Compatibility	Ideal for parts defined with flat geometry such as roller dies with repeated patterns or tool centerline grooves. Excellent for threading and engraving on an angle.	Ideal for parts defined by solid models or surfaces with variable floor and wall tapers. Excellent for swarf cuts and non-circular parts such as cams and extrusion screws.
Machine Compatibility	Works well with machines that do not have a Y-axis such as some mill/turns and multi-task machines.	Works best with Y-axis machines. Does not work well with machines that do not have a Y-axis.
Cutting Operations	Contouring, pocketing, threading, engraving and rotary face milling on mill/turns and multi-task machines.	Contouring and pocketing. Contouring supports variable chamfers that progressively move the tool to the user-defined lean angle.
Depth and Tapers	Works well with constant depth milling. Not suitable for variable-depth floors.	Works well with constant or variable depth milling. Offers a variety of variable-depth floor capabilities.
Wall Angles and Y Offsets	Suitable for parts dimensioned with axial lengths and degrees of revolution. The tool is always a radial tool. There is no Y offset of the tool path, restricting wall angle options.	Supports a variety of part wall angle orientations and Y offsets. Drive the tool along a piece of geometry and a face for swarf cuts or drive the tool along one piece of geometry at a user-defined lean angle.
Cutter Control	Always cuts with the tool on centerline.	Provides ability to control cutter contact by specifying lead/lag and lean.
Multi-revolution Output	Produces optimal multi-revolution G-code output for unlimited revolutions on a single G-code line.	Does not produce single line or single block multi-revolution output.
Interpolation Options	Supports CNC Polar and Cylindrical interpolation output options. Interpolation is created during post processing so the same toolpath can be used on any machine.	Does not support Polar or Cylindrical interpolation output.
Gibbs Post Compatibility	Any Basic or Advanced post processor which does not already support the Rotary Milling option can be updated to support it.	Any Basic or Advanced post processor can be updated to be a 4-axis simultaneous post processor.