

Productivity+™ - PC based probing software for machining centres

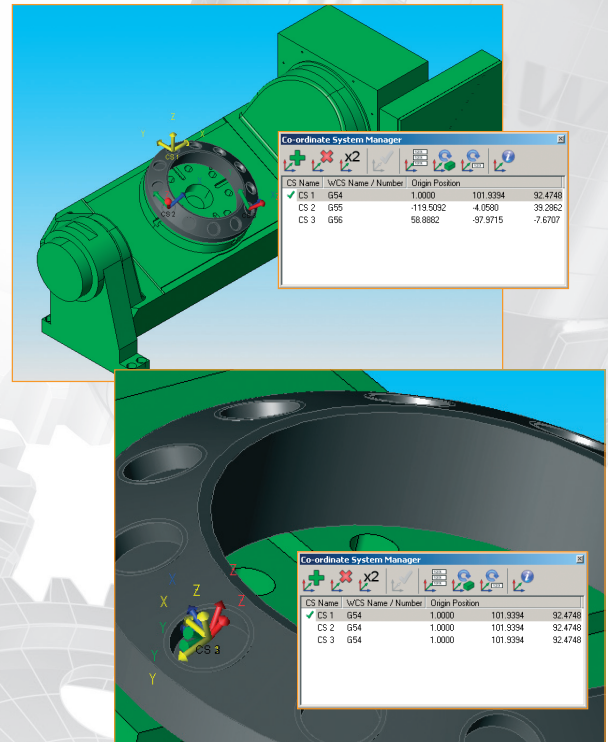
Productivity+™ version 1.80

Productivity+™, Renishaw's software solution for machining process control delivers a wide range of improved functionality in its latest, version 1.80 release.

At the forefront of this latest release is support for programming and running an extended variety of multi-axis machining applications. Programming for multi-axis tasks has been simplified by the introduction of new 'VMC' and 'HMC' viewing options, respectively representing vertical and horizontal machine tools. On machine tools themselves the software now delivers support for Siemens CYCLE800 and Fanuc G68.2 commands, making the set-up of even complex multi-axis parts a far simpler operation.

Version 1.80 also improves the ability for machine shops to monitor their machining processes using Productivity+™. Report formats have been enhanced to include more detailed information about the specific type of feature being described, to ease visual interpretation, and to make it simpler to import report data into alternative applications for subsequent analysis.

Advanced Productivity+™ users will benefit from improvements to the Custom Macro framework, which now provides support for customised, enumerated lists, and fine-grain control over postprocessing and GUI visibility. Additional, "under the hood" improvements include an enhanced probe calibration method for 3D measurement applications, and the ability to manually orientate co-ordinate systems based on component drawings.



Multi-axis programming using multiple co-ordinate system locations (top) and a single location (bottom) where feature co-ordinate systems are enabled

Key benefits of Productivity+™

In-process measurement

Productivity+™ lets users combine probing, updates and machining such that processes can be controlled without the need for an external PC.

Integrated workflow

Programming from the solid model means it's faster to program and that no special machine knowledge is needed. Programming can be performed directly on the CAM workbench. (Those programming without solid models can also take advantage of Productivity+™ functionality.)

Automatic machine updates

An integrated logic builder enables measurements to be used as the input to process control decisions, allowing work co-ordinates, tool geometry, machine variables and rotation updates to be set automatically.

Innovations in version 1.80

Multi-axis enhancements

Controller specific enhancements provide support for Siemens CYCLE800 and Fanuc G68.2 commands.

CAD model import and view options

CAD importer modifications (support for the latest versions of compatible model formats) coupled with extended model view options (simulating VMC or HMC mounting with alignment to machine axes or a user defined default co-ordinate system), ease model manipulation and help reduce programming time.

Probe calibration

Newly extended probe calibration functionality provides enhanced metrology in 3D measurement application.

Key features

Sophisticated part set-ups and operations Integrated logic builder adds intelligence to machining programs with measurement results being used to determine process flow

Point and click programming Simple to use, icon based software
Individual view windows for solid model, probe program, G-Code and probing statement

Multi-axis capability Program for 3-, 4- and 5-axis (3+2 table/ table) machine configurations, including Siemens CYCLE800 and Fanuc G68.2 commands

CAD/CAM compatibility Integrates easily into existing programs and processes
Import a variety of CAD model formats and use to generate probe routines
Import G-Code, then split/re-combine as necessary around the probe routines

Program without solids 'Basic Statements' allow programming without CAD models

Integrate tool setting and probe routines into existing G-Code Determine and update length, radius and/or diameter of cutting tools mid-program for maximum machining accuracy
Select where to add probing and machine or tool updates to existing machining programs

Integrated dialogs and wizards Dialog boxes provide step-by-step instructions
Extensive on-line Help plus sample tutorials
Post Processor tool transforms probe routines into machine readable G-Code

Program simulation Perform program 'prove-out' before loading to the machine controller to eliminate the risk of damage to machine and probe
Visual identification of current program position
Support of multiple probes during simulation

Probe database Record of available probes including full stylus configuration and carousel location
Select standard Renishaw probes or define individual parameters to create 'custom' probes

NC updates WCS (G54, G55 ...)
Rotation
Tool length and diameter
Macro variables

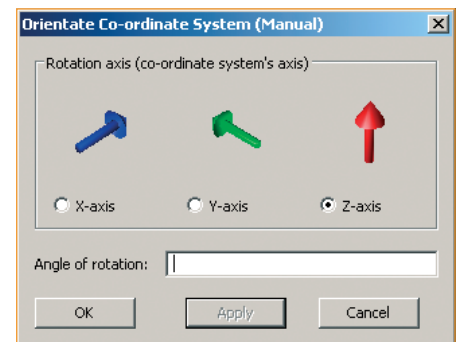
More information

Details of Renishaw's software solutions for machine tools and a comprehensive list of supported CAD formats can be found at www.renishaw.com/mtpssoftware

For worldwide contact details please visit our main website at
www.renishaw.com/contact

PROGRAM STARTS/PGS REPORT/RPT REPORT1						
	NOM	ACT	DEV	LOWER	UPPER	IN TOL
MEASURED POINT/MPT						
POINT1						
POSITION X	-101.0940	-101.0945	-0.00050	-0.0500	0.0500	YES
POSITION Y	-60.0000	-60.0145	-0.01450	-0.0500	0.0500	YES
POSITION Z	-15.0180	-15.0170	0.00152	-0.0500	0.0500	YES
MEASURED CIRCLE/MCL						
CIRCLE1						
POSITION X	0.0000	-0.0066	-0.0066	-0.1250	0.1250	YES
POSITION Y	0.0000	-0.0021	-0.0021	-0.1250	0.1250	YES
POSITION Z	0.0000	0.0000	0.0000			
DIAMETER	20.0000	20.0072	0.0072	-0.0500	0.0500	YES
CONSTRUCTED CIRCLE/CCL						
CIRCLE2						
POSITION X	0.0000	0.0007	0.0007	-0.1250	0.1250	YES
POSITION Y	0.0000	-0.0167	-0.0167	-0.1250	0.1250	YES
POSITION Z	-11.8786	-11.8786	0.0000			
DIAMETER	40.0000	40.0774	0.0774	-0.0500	0.0500	NO
MEASURED POINT/MPT						
POINT2						
POSITION X	19.0700	19.1208	0.0508	-0.0500	0.0500	NO
POSITION Y	-6.0278	-6.0432	-0.0154	-0.5000	0.0500	YES
POSITION Z	-12.3886	-12.3890	-0.0004	-0.0500	0.0500	YES
MATERIAL CONDITION	0.0531					

Enhanced and clarified reporting structure



Manually align co-ordinate systems - improved programming speed in multi-axis applications without a solid model