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Productivity+™ - PC based probing software for machining centres

Productivity+™ release 1.7

Productivity+™, Renishaw's advanced measurement and process control software, is the most powerful tool available for using on-machine measurement to control manufacturing processes.

Productivity+™ release 1.7 includes several new advances, adding exciting new features and making it considerably more flexible. New functionality includes multi-axis capability and the ability to add customised functions into measurement programs.

With Productivity+™ all programmed features run entirely on the CNC machine tool with no need for an external PC - even the new 'Constructed Points' feature.

Multi-axis functionality is being introduced with Productivity+™ release 1.7 as a free Technology Evaluation for all users. The functions are independent of any options built into the machine tool control so they can be applied to the widest possible range of machines. In this release, multi-axis functions will be available for table/table machine configurations only, but these will be continually developed to allow users of different machine configurations to benefit.

Key benefits of Productivity+™

In-process measurement

Productivity+™ lets users combine probing and machining, so features can be automatically checked without the need for an external PC. Incorporating logic statements allows the machine tool to make intelligent choices about how to proceed.

Integrated workflow

Programming measurement on 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 with no solid models can also take advantage of Productivity+™ functionality.

Automatic machine updates

Measurements can be used to set work co-ordinates, update tool length and/or diameter, machine variables and rotation updates.

Innovations in version 1.7

Multi-axis operation

Position the component at any orientation and use the measured features to perform machine updates. This option greatly increases the possibilities for set-up and in-process measurement on 4 / 5-axis machines.
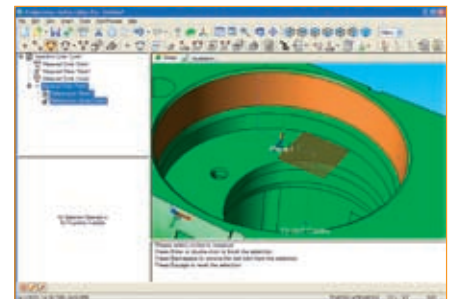
Constructed points

This function allows the construction of a 'virtual' point measurement based on previously measured features, and adds to the existing Constructed Circle and Plane functions. In conjunction with the multi-axis functionality, Constructed Point enables many advanced set-up operations to be performed.

Custom macros

Building on the flexibility of NC software to perform specialised tasks, Custom Macros allow closer integration between the measurement and machine programs. They allow NC programmers to embed their own calculations and macro programs into their cycles, and to report on the results, just like any other Productivity+™ function.
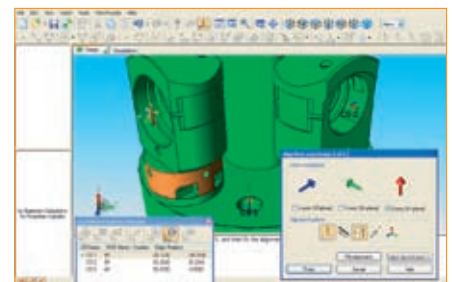
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Key features

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Sophisticated part set-ups and operations	Integrated control statements add intelligence to your machining programs
Point and click programming	Simple to use, icon based software Individual view windows for probe program, G-Code and probing statement
Tool setting	Determine the length, radius and/or diameter of your cutting tools to maximise machining accuracy
CAD/CAM compatibility	Integrates easily into existing programs and processes Import a variety of CAD model formats and use to generate probe routines (STEP, IGES and Parasolid® are supported as standard)
Program without solids	'Basic Statements' allow program creation without CAD models
Integrate tool setting and probe routines into existing G-Code	PC based programming eliminates the need to spend time at the machine tool Select where to add probing to existing machining programs
Instructional dialogs and wizards	Dialog boxes with step-by-step instructions Post Processor transforms probe routines into machine G-Code On-line Help and tutorial examples
Program simulation	Visualisation feature allows users to prove-out the program before loading to the machine controller Eliminate the risk of damage to machine and probe
Probe database	Identify available probes and their carousel location Select standard Renishaw probes or define individual parameters to create additional probes Full stylus configuration
Multi-axis support	3-axis 4-axis (indexer) 5-axis (trunnion/table)
Custom macros	Use program data in macro calls Use macro variables as input parameters Report on custom macro output
NC updates	WCS (G54, G55 ...) Rotation Tool length and diameter Macro variables

Constructed point: point on a plane
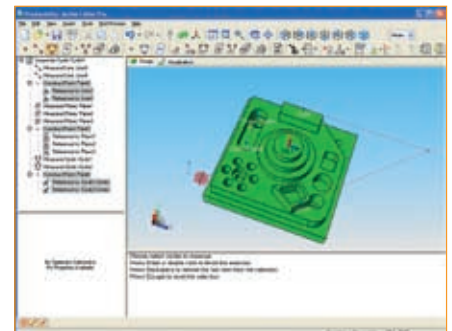
Constructed point: intersection of three planes

Multi-axis: co-ordinate system placement
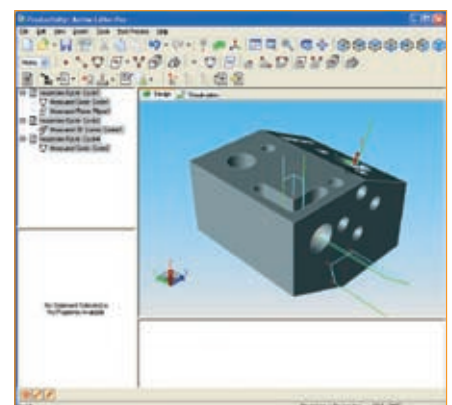
Multi-axis probing

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/mtpsoftware

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