

Productivity+™ Scanning Suite

Productivity+™ Scanning Suite is the collective name for a family of closely integrated software packages designed for use with the Renishaw OSP60 scanning probe.

A core element of the Scanning Suite is the Productivity+™ CNC plug-in. This unique software application offers unparalleled opportunities for automated workpiece measurement, inspection, and in-process control applications on CNC machine tools.



Benefits of on-machine scanning

- Significant reductions in part setting and inspection cycle times.
- High-density data results. Up to 1000 3D data points every second at feedrates of up to F15000.
- Comprehensive feature information including dimensional and geometric data, positional and angular offsets, and true feature form.
- Absolute confidence in measurement results due to continual communication between the scanning system and machine tool position data.
- Reduced scrap, improved manufacturing capability, productivity, process optimisation, and automation.

Productivity+™ CNC plug-in

Designed for use with the OSP60 probe with SPRINT™ technology, Productivity+™ CNC plug-in software records absolute XYZ surface position data with exceptional accuracy.

The CNC plug-in continually communicates with the machine tool controller via API. This allows real-time data processing capability utilising measurements and analytical processes which would previously have been impossible to perform within a CNC machining process.

Prismatic feature measurement, such as scanned circles and scanned planes, is supported as standard. Where inspection of more complex component geometry is required, a range of additional, complementary software applications extend the capability and ease-of-use of the CNC plug-in.

The software is particularly suited for applications that must be performed in-cycle but which require high-density, accurate data. For example, adaptive machining, high-speed process control, and job set-up where advanced fitting is required.

Probe routines can be generated directly on the machine tool controller via the integrated Editor functionality using parametric programming techniques. Alternatively, Productivity+™ Active Editor Pro can be used to generate scanning programs, and can significantly simplify programming for more advanced applications.

Scanning Toolkits and Scanning Cycles

Optional Scanning Toolkit and Scanning Cycle software applications extend the functionality provided by the CNC plug-in. These application-specific software packages provide solutions including the high-speed measurement of blade sections, a sub-60 second health check to determine machine performance capability, and the fast and accurate scanning of complex, 3D, free-form surfaces.

Productivity+™ Active Editor Pro

Productivity+™ Active Editor Pro provides users with a simple-to-use, CAD/CAM-style programming environment. In-cycle measurement, inspection routines, logic and updates can be incorporated easily into existing machining code: no G-code programming experience is required.

Simply import a component solid model (a corresponding CAD importer is required) and select the required feature or wire geometry. The software then generates the probe toolpath. Once all necessary elements have been created, a post processing operation generates a single, comprehensive NC program containing metal cutting and component inspection operations. Manual programming options are available where no solid model exists.

Productivity+ CNC plug-in		
Supported controllers	Part numbers: software alone	Part numbers: pre-installed on a DPU-2 (data processing unit) for connection to the machine tool controller
Fanuc: Series 3xi	A-4007-1810	A-4007-4222
Mazak: SmoothX, SmoothG, SmoothAi	A-4007-1830	n/a
Mitsubishi: Kitamura Arumatik-Mi	A-4007-1860	n/a
Okuma: OSP-300MA, OSP-P300SA	A-4007-1840	A-4007-4225
Siemens: SINUMERIK 840D sl	A-4007-1800	A-4007-4221
Scanning Toolkits and Scanning Cycles		
Freeform Surface Toolkit	A-5750-2250	
Blade Toolkit¹	A-5750-2050	
Adaptive Cut Toolkit¹	A-5750-2280	
Best Fit Alignment Toolkit¹	A-5750-2310	
3D Features Toolkit²	A-5750-2380	
Machine Health Check	A-5750-2100	
Single-Sided Diameter	A-5750-2020	
Offline programming software		
Productivity+ Active Editor Pro	A-4007-1400	
Productivity+ Active Editor Pro SPRINT option	CS-SOF-SW-02-2015	Required to generate programs for OSP60 on-machine scanning probes.
Productivity+ Active Editor Pro CAD importers		
Creo Elements/Pro (Pro/ENGINEER)	CS-SOF-SW-02-0007	
CATIA	CS-SOF-SW-02-0008	
NX (Unigraphics)	CS-SOF-SW-02-0009	
ACIS	CS-SOF-SW-02-0010	
SolidWorks	CS-SOF-SW-02-0011	
AutoDesk	CS-SOF-SW-02-0012	
3 or more CAD importers	CS-SOF-SW-02-0005	
Other		
Supported languages	English, Chinese (simplified), Chinese (traditional), Czech, French, German, Italian, Japanese, Korean, Spanish.	

¹ A licensed Freeform Surface installation is also required to use this Toolkit.

² 3D Feature Toolkit functionality is included in the Freeform Surface Toolkit as standard.

Measurement capability							
	Point	Circle	Line	Plane	2D corner	3D corner	Web/pocket
Measured statement	✓	✓	✓	✓	✓	✓	✓
Scanned statement ¹		✓		✓			
Constructed statement	✓	✓	✓	✓			
WCS set/update	✓	✓	✓	✓	✓	✓	✓
Tool length update	✓		✓	✓		✓	
Tool diameter update	✓	✓	✓	✓	✓	✓	✓
Machine variable set/update	✓	✓	✓	✓	✓	✓	✓
Rotation update			✓	✓	✓		✓
Reporting	✓	✓	✓	✓	✓	✓	✓

¹ Scanned statements are only possible when using an OSP60 scanning probe.

Optional reporting and diagnostics software

Scan Data Viewer aids the set-up of scanning measurement processes. It supports the import of component solid model geometry, multiple scan data files and associated co-ordinate systems. By viewing probe deflection values on the solid model, users can quickly identify areas of probe under or over deflection, and adjust the scan path or part set-up accordingly. Users can also view a heat map of the scan surface compared to the nominal solid model.

Reporter is an on-machine app designed to display measurement data and production trends in a quick and easy way. View live and historical measurement results from scanning routines. The app is installed onto a Windows®-based CNC controller or a Windows tablet connected to the controller via Ethernet.

The Reporter Data Export option allows measurement data collected by the Reporter app to be exported to a .csv format file. Exported data can be stored for traceability, or imported into third-party quality analysis software, providing valuable insights into machining processes.

MODUS CHART software generates reports utilising the component CAD model to allow graphical information to be shown against the true location on the part. Reporting functionality includes: on-CAD reports with flexible callout positioning and configuration; heatmaps, and tables displaying feature tolerances; and an errors-only report to quickly identify features that are out of tolerance.

Optional software		
Scan Data Viewer		A-5750-2400
Reporter	Fanuc	A-5999-4200
	Mazak	A-5999-4300
	Mitsubishi	A-5999-4500
	Okuma	A-5999-4400
	Siemens	A-5999-4700
Reporter Data Export option	CS-SOF-SW-02-REPR	
MODUS CHART	A-5871-3001-KEY	Dongle-based installation
	CS-SOF-SW-01-1516	PC-based installation

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