RENISHAW
apply innovation™

Enhance your machining capabilities with your local Renishaw partner

Uniquely experienced

Unrivalled support

World-leading technology

About us

Renishaw is a world-leading supplier of industrial metrology and process control solutions for a diverse range of manufacturing industries. The highly skilled team of personnel based in our Breda office in The Netherlands (Renishaw Benelux), backed by a truly global service and support network – wholly owned subsidiaries in more than 30 countries, and a comprehensive distribution network – make Renishaw a highly qualified partner to help improve your machining processes.

Customer satisfaction is our key priority. From the initial point of contact we work closely with our customers to maximise the return on investment at all stages of their manufacturing process. Developing and maintaining close working relationships with our customers, and providing outstanding support, is essential to achieve the high levels of satisfaction experienced by our customers.

Support and services

- Comprehensive analysis of existing manufacturing techniques, including measurement and inspection processes
- Experienced application and business sector professionals who can provide optimised, cost-effective solutions – from machine performance and job set-up to adaptive control and post-process verification
- Local customer training for hardware and software solutions
- Efficient product service and repair centre

Your friendly Renishaw Benelux team

Providing a one-stop solutions shop, the team at Renishaw Benelux offers a wealth of technical product knowledge and applications experience coupled with outstanding customer service and support.

Post-sales support and services include: product installation; training programmes; product service; and repair and replacement.

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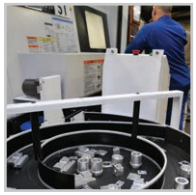
Optimise your manufacturing process

Are you aware of how Renishaw can help improve the performance of your manufacturing processes? Whether you want to reduce set-up time, eliminate operator errors, or solve issues related to thermal effects, Renishaw offers machine tool metrology solutions to help you to increase available machining time, achieve consistent, accurate part setting, reduce scrap rates and improve your bottom line.



1 Enhance your capability and take on more work

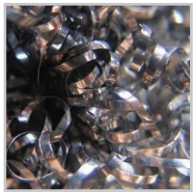
- Offer your customers more state-of-the-art capabilities
- Take on more complex work
- Meet customer demands for traceability

2 Increase throughput from your existing assets

- Defer capital expenditure
- Reduce your sub-contract and overtime bills
- Pursue additional business

3 Increase automation and reduce human intervention

- Automate manual setting and measurement processes
- Reduce direct labour costs
- Redeploy staff into proactive engineering roles



4 Reduce rework, concessions and scrap

- Improve conformance and consistency
- Lower cost units
- Reduce lead times

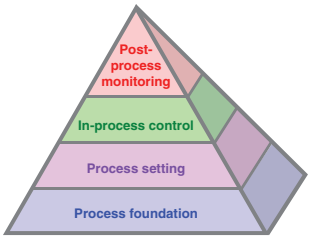
5 Reduce cost and increase savings

- Buy fewer, more productive machines
- Eliminate expensive, inflexible custom gauges
- Reduce calibration and maintenance costs

The Productive Process Pyramid™

Tackle process variation at source, and reap the rewards

Renishaw's Productive Process Pyramid™ provides a framework within which to identify and control variation in manufacturing. This framework, backed by innovative technology, proven methods of incorporating process control and an extensive, expert support network, mean Renishaw can make your goal of 'green button' – or 'lights out' – manufacturing a reality.



Process foundation – preventative solutions

Performed in advance of component manufacture, Renishaw's process foundation solutions maximise the stability of the process, the environment and the machine. These preventative controls stop causes of variation having an impact on the machining process.

- Eliminate machine errors
- Reduce unplanned stoppages
- Produce consistently good parts

Process setting – predictive solutions

Process-setting controls are on-machine activities, applied just before metal cutting, which predict whether the process will be successful.

- Eliminate costly fixtures and manual setting errors
- Introduce new processes quickly and respond to new customer needs
- Achieve faster set-up, improve quality and reduce scrap

In-process control – active solutions

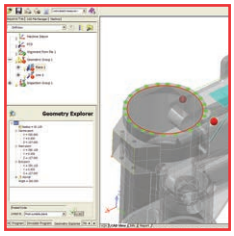
Controls in this Pyramid layer include actions embedded within the metal cutting process that automatically respond to material conditions, inherent process variations and unplanned events, giving the best chance of a successful process.

- Improve process capability and traceability
- Compensate for environmental/machine conditions
- Increase productivity and profits

Post-process monitoring – informative solutions

The top layer of the Pyramid involves monitoring and reporting activities that provide information about the outcome of completed processes which can then be used to influence subsequent activities.

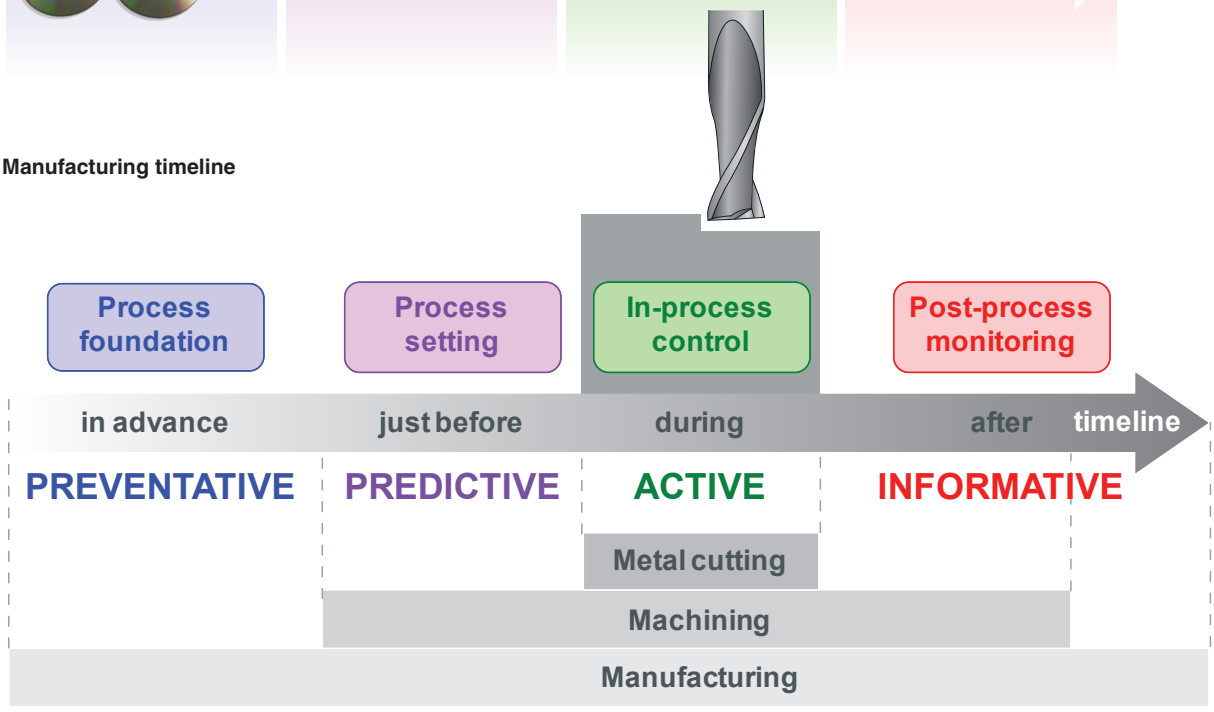
- Reduce off-machine inspection time and costs
- Receive rapid, traceable reporting of part conformance to specification
- Increase confidence in manufacturing process



Our solutions

Our products provide a variety of solutions to help improve your manufacturing performance and increase your production capability. From ensuring accurate and consistent part set-up, increased throughput through to on-machine inspection and part verification, Renishaw can provide you with a tailored solution to your individual manufacturing requirements.

Manufacturing timeline



Renishaw inspection probes

Use the tables below to help you identify the hardware solutions most suitable for your applications. Selections can be made based on the task to be performed, machine type, or the transmission and probing technology employed by the probe or tool setter.

Machine types	Machine size	Probes	Technologies			Transmission		
			Kinematic	Strain gauge	Scanning	Optical	Radio	Hard wired
			Repeatability (2σ)		Resolution			
Vertical CNC machining centre 	Compact/ small/ medium	OMP40-2	1.00 µm			●		
		OMP400		0.25 µm		●		
		RMP40	1.00 µm				●	
		OMP60	1.00 µm			●		
	Medium/large	OSP60			0.1 µm	●		
		RMP60	1.00 µm				●	
		RMP600		0.25 µm			●	
Horizontal CNC machining centre 	Compact/ small/ medium	OMP40-2	1.00 µm			●		
		OMP400		0.25 µm		●		
		RMP40	1.00 µm				●	
		OMP60	1.00 µm			●		
	Medium/large	OSP60			0.1 µm	●		
		RMP60	1.00 µm				●	
		RMP600		0.25 µm			●	
CNC multi-tasking machines 	Compact/ small/ medium	OMP40-2	1.00 µm			●		
		OMP400		0.25 µm		●		
		RMP40	1.00 µm				●	
		OMP60	1.00 µm			●		
	Medium/large	OSP60			0.1 µm	●		
		RMP60	1.00 µm				●	
		RMP600		0.25 µm			●	
Gantry CNC machining centre 	All	OSP60			0.1 µm	●		
		RMP60	1.00 µm				●	
		RMP600		0.25 µm			●	
CNC lathes 	All	OLP40	1.00 µm			●		
		RLP40	1.00 µm				●	
CNC grinders 	All	MP250		0.25 µm				●
		LP2	1.00 µm					●

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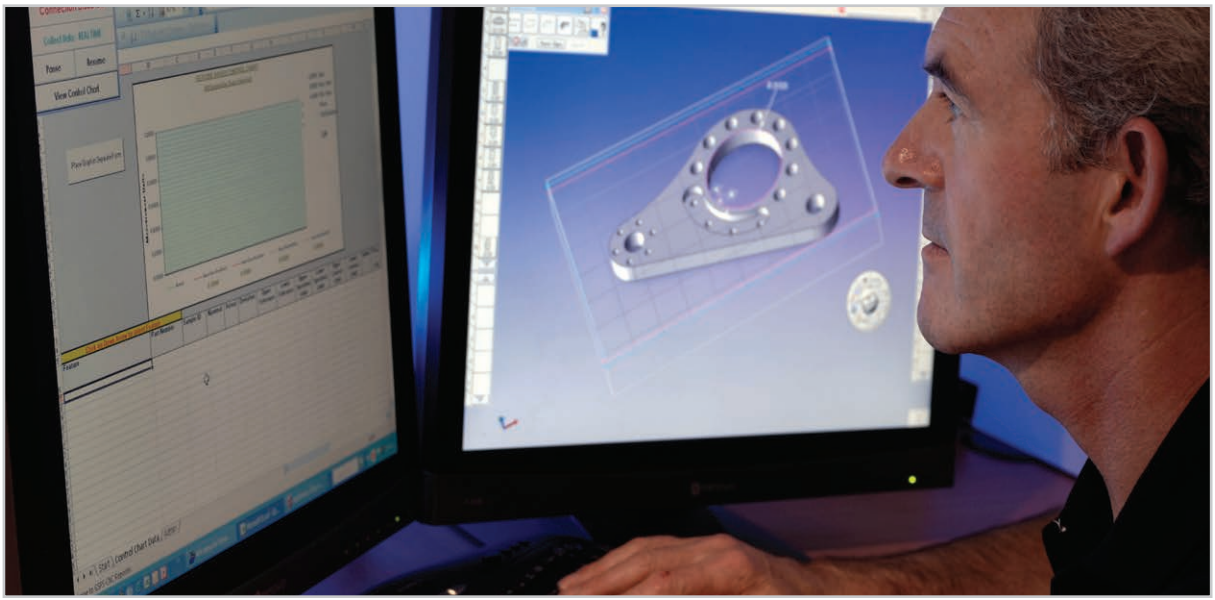
Renishaw tool setters and broken tool detectors

Machine types	Machine size	Tool setter and broken tool detection	Minimum tool size detection	Repeatability (2σ)	Contact	Non-contact	Transmission		
							Optical	Radio	Hard wired
Vertical CNC machining centre 	Compact/ small/ medium	OTS	Ø1.0 mm	1.00 µm	●		●		
		TS27R	Ø1.0 mm	1.00 µm	●				●
		NC4	Ø0.03 mm	0.10 µm		●			●
		TRS2*	Ø0.2 mm	N/A		●			●
	Large	TS27R	Ø1.0 mm	1.00 µm	●				●
		RTS	Ø1.0 mm	1.00 µm	●			●	
		NC4	Ø0.03 mm	0.10 µm		●			●
		TRS2*	Ø0.2 mm	N/A		●			●
Horizontal CNC machining centre 	Compact/ small/ medium	OTS	Ø1.0 mm	1.00 µm	●		●		
		TS27R	Ø1.0 mm	1.00 µm	●				●
		NC4	Ø0.03 mm	0.10 µm		●			●
		TRS2*	Ø0.2 mm	N/A		●			●
	Large	TS27R	Ø1.0 mm	1.00 µm	●				●
		RTS	Ø1.0 mm	1.00 µm	●			●	
		NC4	Ø0.03 mm	0.10 µm		●			●
		TRS2*	Ø0.2 mm	N/A		●			●
CNC multi-tasking machines 	All	HPXX (with RP3)	Ø1.0 mm	1.00 µm	●				●
		NC4	Ø0.03 mm	0.10 µm		●			●
		TRS2*	Ø0.2 mm	N/A		●			●
Gantry CNC machining centre 	All	TS27R	Ø1.0 mm	1.00 µm	●				●
		RTS	Ø1.0 mm	1.00 µm	●			●	
		NC4	Ø0.03 mm§	0.10 µm§		●			●
		TRS2*	Ø0.2 mm	N/A		●			●
CNC lathes 	All	HPXX (with RP3)	Ø1.0 mm	5.00 µm (6 in – 15 in arms) 8.00 µm (18 in – 24 in arms)	●				●
		HPGA (with MP250 or LP2)	Ø1.0 mm	3.00 µm Δ	●				●
CNC grinders 	All	HPGA** (with MP250)	N/A	3.00 µm	●				●

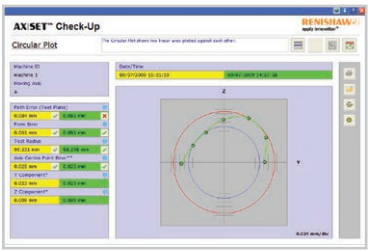
* Broken tool detection
** Tool and workpiece inspection
Δ Maximum 2σ value in any direction
§ Dependent on system, separation and mounting

Software solutions



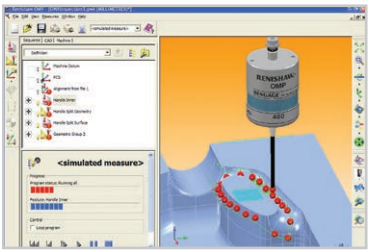
Easy to use, efficient and effective Renishaw software

Renishaw provides a selection of measurement and inspection software solutions which are designed to complement its range of measurement and process control hardware.



There are two main classifications of software:

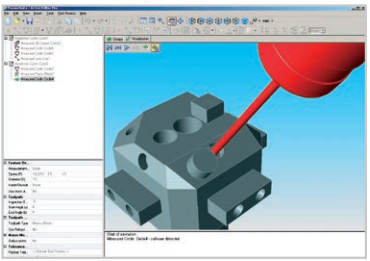
On-machine programming packages, which are installed and resident on the CNC machine tool control, are best suited to 'on the fly' shop floor programming. Programming is typically performed at the machine using traditional G-code or one of our growing range of graphical user interfaces (GUIs).



Off-machine (PC-based) programming packages enable a wide variety of tasks to be performed using post processors configured for individual machine tools. Probe routines can be programmed alongside CAM programs or on a standalone PC, providing flexibility and control when integrating probing into the various stages of a production process.

Applications include:

- Part identification
- Intelligent program selection
- Part presence checking
- Job set-up
- Tool setting
- Tool identification
- Determine machine capability
- Clearance check
- Variable based programming
- Path optimisation
- Cutter parameter update
- Dynamic remachining
- Thermal correction (machine drift and workpiece expansion)
- Tool condition monitoring
- In-process datum setting
- Process reporting
- Critical feature reporting



Software selector

Renishaw has a range of user-friendly software solutions to offer. The table below highlights the key capabilities and functions of our products, to enable you to select the right software program for your needs.

All Renishaw software solutions offer a wide range of qualifying measurement options. If special measuring cycles are required, Renishaw may be able to offer to develop a customised solution according to your requirements.

Software / Functionality	Contact tool setting	Non-contact tool setting	Inspection Plus	AxiSet™ Check-Up	Productivity+™ Active Editor Pro	PowerINSPECT OMV PRO	Renishaw CNC Reporter
On-machine programming software	●	●	●	●			
Off machine (PC-based) programming software				● [3]	●	●	●
On-machine process control	●	●	●		●		
On-machine verification with graphical reporting						●	
On-machine verification with text-based reporting [1]	●	●	●		●		
Advanced reporting							●
Programming options	G-code; CAM system [2]; Set and Inspect/GUI; GoProbe	G-code; CAM system [2]; Set and Inspect/GUI;	G-code; CAM system [2]; Set and Inspect/GUI; GoProbe		CAD model; CAM system [2]	CAD model	
Run the same program on different CNC controls					●	●	
On-machine program editing	●	●	●				
Machine diagnostics				●			

[1] Subject to machine tool configuration

[2] Capability provided by certain CAM vendors

[3] Macro results analysis package

Renishaw Benelux BV

Nikkelstraat 3
4823 AE Breda
Nederland

T +31 76 543 11 00
F +31 76 543 11 09
E benelux@renishaw.com

www.renishaw.nl

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About Renishaw

Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective automation solutions.

A worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

Products include:

- Additive manufacturing, vacuum casting, and injection moulding technologies for design, prototyping, and production applications
- Advanced material technologies with a variety of applications in multiple fields
- Dental CAD/CAM scanning and milling systems and supply of dental structures
- Encoder systems for high accuracy linear, angle and rotary position feedback
- Fixturing for CMMs (co-ordinate measuring machines) and gauging systems
- Gauging systems for comparative measurement of machined parts
- High speed laser measurement and surveying systems for use in extreme environments
- Laser and ballbar systems for performance measurement and calibration of machines
- Medical devices for neurosurgical applications
- Probe systems and software for job set-up, tool setting and inspection on CNC machine tools
- Raman spectroscopy systems for non-destructive material analysis
- Sensor systems and software for measurement on CMMs
- Styli for CMM and machine tool probe applications

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

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