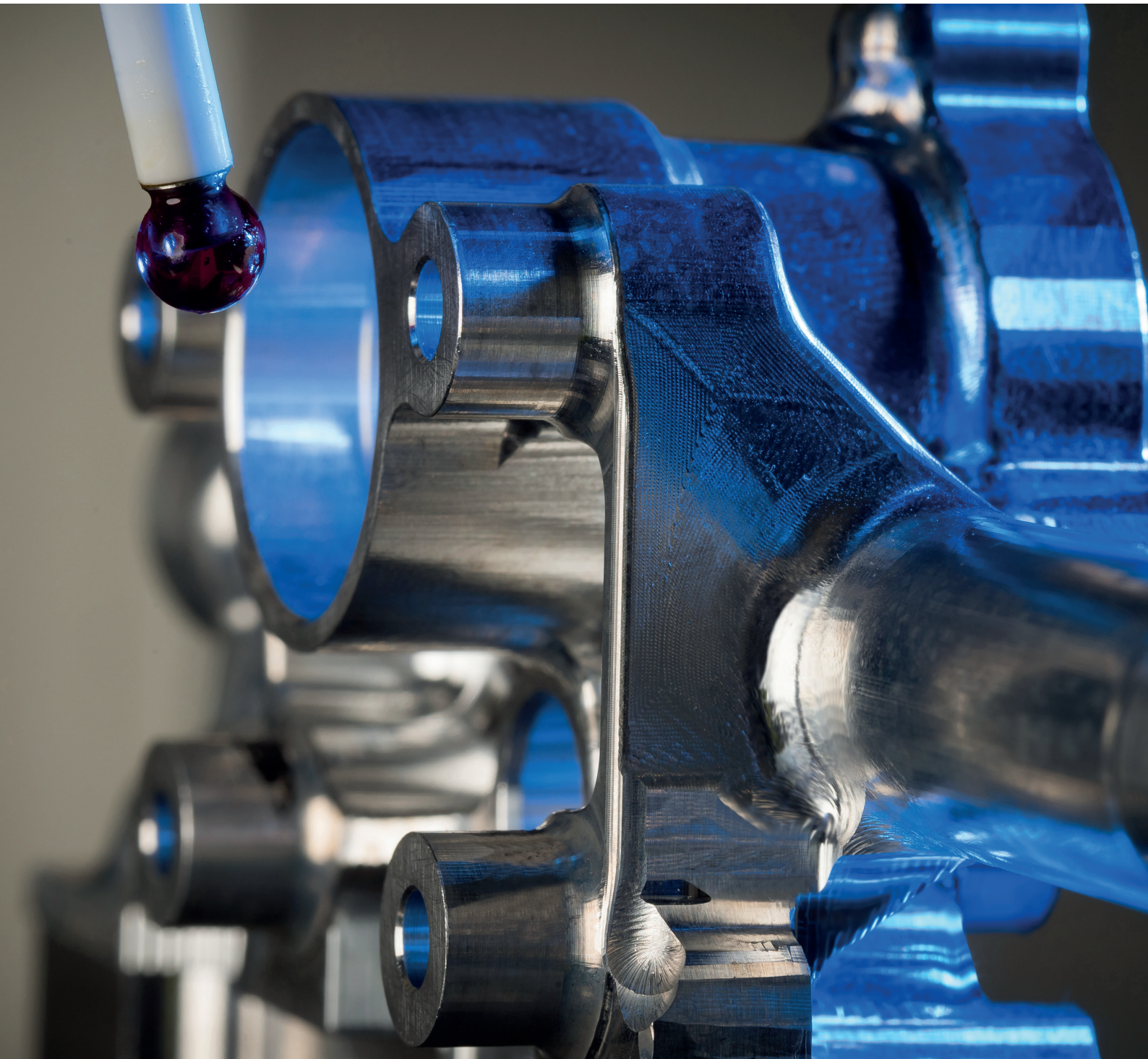




Product Brochure

NC-PartLocator

For perfect parts first time, every time



The Perfect Part

Perfect parts every time

NC-PartLocator uses probing to measure precisely where the part is on the machine bed, then automatically adjusts the controller setting to account for any misalignment. The result? An automated, error-free process, with setup and inspection time significantly reduced and perfect parts machined - from the first part to the last.

Machine and part setup

There are two main reasons why parts do not routinely pass final inspection. The first is poor machine tool geometric performance, in both absolute terms and drift over time, affecting its capability for accurate machining.

The second is poor part setup, which results in machining programs incorrectly aligned to the part. The complexity of multi-curved parts on 5-axis machine tools makes setup impossible without expensive tooling or NC-PartLocator.

Secondary errors, including condition of supply, pallet loading systems and temperature, compound the first two problems to make accurate part setup beyond the scope of operators.

Green to go / red to stop

What an operator needs is a simple automated Go-NoGo solution. A series of green screens that drive the part process.

However, making a perfect part is also about not creating a bad one. Our system inserts checks into each stage of your process and raises a red stop screen if an error is found.

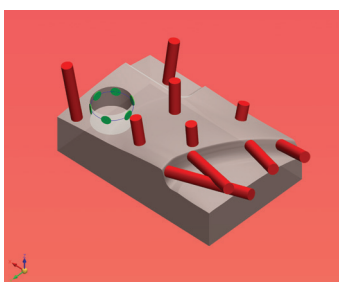
You have the power to correct the error before proceeding. With NC-PartLocator you can be confident every part will come off your machine perfectly.

Full automation

NC-PartLocator has two operation modes. Manual operator mode, or full automation for 24/7 lights-out environments. Automated operation eliminates manual error from part processes. Feedback and error reports can be integrated with cell manager reporting systems. Part process data is also recorded in a traceable archive for evaluation within continuous improvement programs.

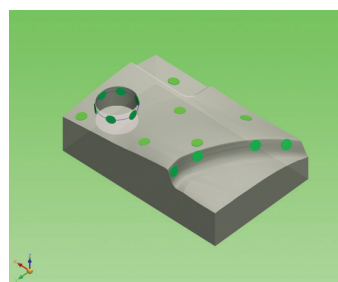
Perfect solution

Not only do we understand the reasons for your problems, our engineers have spent many years developing the solution - NC-PartLocator.



Before NC-PartLocator

Any part misalignment is displayed for the operator.



After NC-PartLocator

The part misalignment is automatically compensated for prior to machining.

The Perfect Machine

Understand your machine

Before using NC-PartLocator, it is important to understand your machine tool geometry and probing system. If they cannot be trusted, your ability to produce a perfect part is compromised.

Our complementary software, NC-Checker, shows you exactly where your machines are underperforming, and why the parts they make are poor quality with clear, at-a-glance reports. NC-Checker can assess the capability of your machine tool and identify if any errors are present. This gives the operator the chance to remove them before any material is cut - giving them complete confidence in their production cycle and machine tool.

Key features

- Machine signature
- Machine comparison
- Simple colour-coded results
- Fully traceable archive
- Trend analysis
- Push-button interface

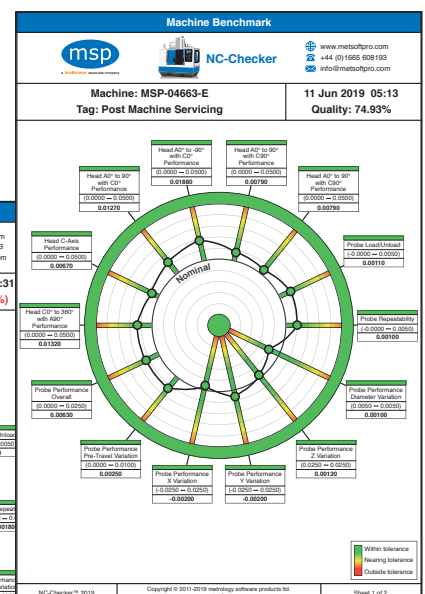
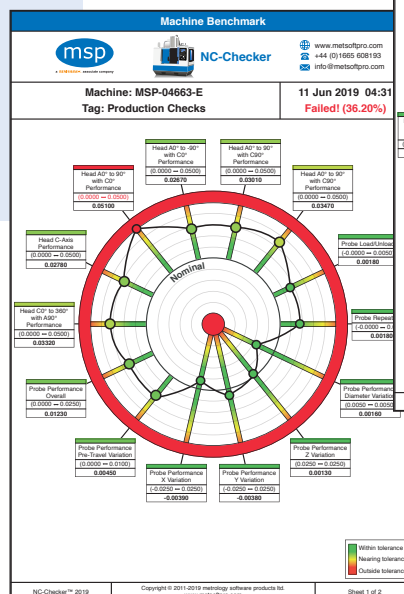
Further information available in separate NC-Checker brochure.

Day to day machine capability

NC-Checker runs a series of multi 5-axis geometric performance checks. These are configured for your part tolerances. This demonstrates the ability of your machine to make the parts. The result is generated in an easy to understand “benchmark report”.

Preventative maintenance

By comparing benchmark reports over time, or machine to machine, the effect on your part process can be monitored. Any differences will manifest themselves as part to part variation. After identification these can be corrected to ensure your machine isn't affecting your part quality.



Process

1

Machine benchmark

The machine tool and its probing system are benchmarked using NC-Checker. The probe is correctly calibrated and confirmed in 5-axis.

A series of checks are performed, including rotary and linear axis tests, to produce detailed reports. The report summary is the MSP benchmark wheel. Please see the separate NC-Checker brochure for more information.

2

Condition of supply

NC-PartLocator then measures the part to check its condition of supply. If there is too much distortion, or not enough material, the part process can be stopped. This prevents you from machining the part when it is already clear it will fail final inspection.

3

Automated alignment

Measurements taken in step 2 are used to calculate the part alignment. The machine controller is then automatically updated to compensate for any discrepancy between the part location and the machining program. All errors due to misalignment are eliminated.

4

Machine the part

The machining program runs at the corrected alignment. The machine tool has been benchmarked as capable of performing to the required tolerances.

5

Post-machine verification

The part is measured again on the machine tool to ensure there are no machining errors before the part leaves the machine. A verification report is produced for traceability within the process. Any subsequent errors can be traced to fixture unclamping.

6

Perfect part

You have made a perfect part with no concessions or errors.

Advantages



Increase profits

NC-PartLocator sets parts up in minutes. Machine time per part is reduced so more production time is available. Zero concessions and scrap reduce your costs per part. Simpler fixtures means lower tooling costs. Your investment is often recouped in days and increasing profits thereafter.



Simplify fixturing

NC-PartLocator allows innovative fixture design. Our system aligns parts, so there is no requirement for the fixture to do so. Expensive fixtures with alignment capability are unnecessary. Simple cost effective fixtures can be used, often giving better part access, so mid-process setup steps can be removed. This allows continuous single programs and can reduce machine time by up to 80%.



Stablise schedules

NC-PartLocator is an automated system using machine tool probing. The result is a fixed setup time, usually measured in minutes, ensuring your part production schedules are always met. Variability of time on the machine is eliminated.



Reduce part to part variation

Together, NC-Checker and NC-PartLocator trap errors in machine performance, fixture tolerance build up and part setup. These errors manifest themselves as differences in final inspection. Getting processes under control by removing these errors stops this variation, providing consistency and improved quality.



Detect and eliminate errors

NC-PartLocator has many in-process checks including condition of supply before the machining has begun. Errors are detected before they affect your part. Machine tool probing is used to give you the confidence to remove all other time-consuming and expensive in-process measurement systems.



Machine to machine part transfer

NC-PartLocator is capable of transferring part alignment information between machines. A machine failure need not be a production emergency, as any part, even mid-machining, can be relocated to another machine for completion.

Features



Simple push-button interface

NC-PartLocator is designed for operators. Training takes a day. The effortless green for Go, red for No-Go interface makes correcting part misalignment errors as easy as pushing a button.



Fully traceable archive

NC-PartLocator archives detailed reports for the part's condition of supply and alignment, giving full traceability. Results can be viewed over time to assess process capability.



Automated operation

NC-PartLocator automates part setup and is the most significant step you can take to improve part quality. Part measurement is automatic, the alignment adjustment is automatic and the whole process takes a few minutes. As parts become increasingly complex, the removal of manual setup is a critical factor.



Multiple alignments

NC-PartLocator is especially suited to composite parts prone to distortion or variable thickness. Where there is no overall single alignment, incremental setup stages are used within the process to align the part. Large structures often exhibit the same issues.



Simple integration

NC-PartLocator is designed to work alongside your existing processes not replace them. Installation and integration takes a few days and is compatible with all major CAD systems. It is so simple to use, operators can be trained in a day.



Condition of supply

NC-PartLocator reports whether there is enough material to clean up, or if the part is under-sized. It answers the question - is it worth machining at all? The archived report supports any part rejection audit. As well as making perfect parts, our aim is to stop you making bad ones.

About MSP

MSP specialise in world class precision software and part manufacturing solutions - revolutionising the way the advanced manufacturing industry make and measure parts around the world.

An associate company of Renishaw PLC, MSP's award-winning, patented products automate each stage of the manufacturing process to remove error and help the biggest aerospace, defence and motorsport companies produce 100% accurate parts.

Our expertise is recognised by industry leaders worldwide, with customers benefiting from increased productivity, huge reductions in costs, and significant time savings.

MSP is founded on decades of metrology, calibration and machining experience and our team know how to eliminate manual error, machine error, part setup error and CMM backlogs from the manufacturing process.

We conduct extensive R&D in precision software and part manufacturing – making sure we're continuing to find innovative solutions to industry problems.

Memberships and Partnerships

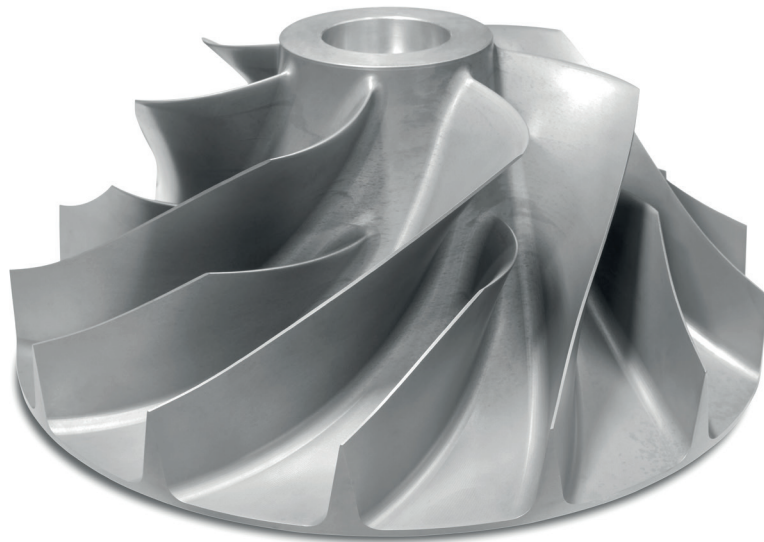




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