

NC4 non-contact tool setting system

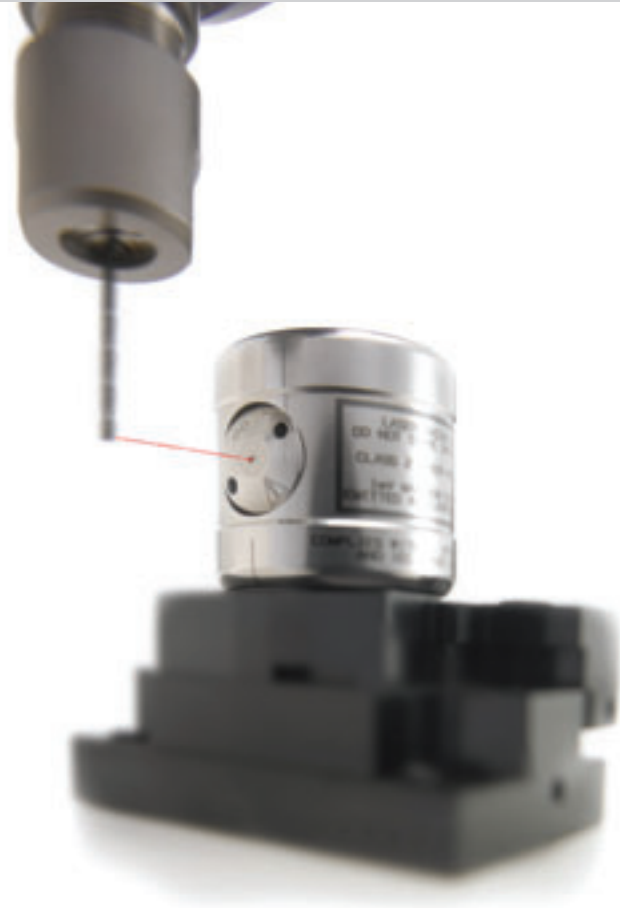
High speed, non-contact, tool setting and breakage detection

The NC4 is a flexible laser system, with ultra-compact laser tool setting transmitter and receiver units that can be mounted on separate brackets, or as a single fixed unit. The NC4 allows fast, non-contact, tool setting and tool breakage detection on machines previously unsuitable for such applications.

Non-contact tool setting systems can reduce tool setting times by up to 90% and reduce scrap caused by setting errors. Broken tool detection cycles enable reliable unmanned machining.

In addition to the innovative MicroHole™ protection system featured in all Renishaw's non-contact systems for machine tools, the NC4 benefits from PassiveSeal™, an additional failsafe sealing device, preventing contamination in the event of air supply failure.

Ideal for retrofitting, the NC4 offers fast set-up as there is no laser focal point to identify.



Key benefits

Brings probing to small machines

At just 30 mm (1.18 in) diameter and 35 mm (1.38 in) high, NC4 meets the demand for probing on machines previously unsuitable for larger non-contact tool setting and tool breakage detection systems.

Fast, robust and repeatable

Dependent on separation distances, tools as small as 0.2 mm (0.008 in) diameter can be measured at any selected point along the beam, and tools as small as 0.1 mm (0.004 in) can be checked for breakage.

Flexible systems

Available as both fixed and separate systems, with a measuring length of 225 mm (8.86 in) (overall unit length of 300 mm (11.81 in) on the fixed system, and up to 5 m on the separate system.

Innovations

Ultra-compact design

Miniaturised electronics, and the compact protection system without a bulky shutter mechanism, makes the NC4 suitable for machines with limited space for probe fitment.

Environmental protection

In addition to its MicroHole™ technology, the NC4 also features PassiveSeal™ - an integrated failsafe device which maintains IPX8 protection 100% of the time, even if the air supply fails.

One system supports all separations

With generic transmitter and receiver units, and no focal point to identify, installing the separate NC4 system is simple and fast, making it ideal for retrofitting to existing machines.

Specification

Principal application

High precision, high speed, non-contact tool measurement and broken tool detection on vertical and horizontal machining centres

Laser type

Visible red light <1 mW 670 nm. Conforms to American (21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50 dated July 26, 2001) and European (IEC 60852-1:1993 + A1: 1997 + A2: 2001) laser safety standards

Laser beam alignment

Adjuster pack (optional on separate systems)

Electrical connection arrangement

Separate system: hardwired cable on underside of unit. Fixed system: hardwired cable on end or underside

Sealing

IPX8, with or without air

Length

Separate: 30 mm (1.18 in) diameter x 35 mm (1.38 in) long
Fixed: 300 mm (11.81 in) long x 40 mm (1.57 in) wide x 120 mm (4.72 in) high

Mounting

- Fixed system
- Separate system

Single M10 / M12 fixing
Fixing for M3 screws

Typical repeatability

$\pm 0.25 \mu\text{m}$ (10 μin) 2σ at 0.2 m separation

Min tool \varnothing for setting

0.2 mm (0.008 in) or larger depending on separation and set-up

Min tool \varnothing for breakage detection

0.1 mm (0.004 in) or larger depending on separation and set-up

Air-protection system

Supply pressure greater than 2 bar, air usage 8 litres / min. Supply must conform to ISO 8573-1 : Air quality class 5.7

Power supply

120 mA @ 12V, 70 mA @ 24 V

Output signal

Voltage free SSR

Temperature limit

- Operating
- Storage

+5° C to +50° C
-10° C to +70° C

More information

The NC4 is available as a retrofit solution for existing machines, including probing software, installation and training. Contact your Renishaw supplier for further details.

Details of system kits and spare parts can be found at www.renishaw.com/NC4



NC4 laser tool setter



NC4 checking a tool for breakage with coolant running

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