Installation guide

RENISHAW
apply innovation™

AxiSet™ Check-Up hardware

www.renishaw.com/axiset

#renishaw

Compliance information for this product is available by scanning the QR code or visiting **www.renishaw.com/mtpdoc**

RENISHAW
apply innovation™

Contents

Before you begin 1-1
Warranty 1-1
CNC machines 1-1
Care of the system 1-1
Patents 1-1
Intended use 1-1
Safety 1-2
Information to the user 1-2
Information to the machine supplier/installer 1-2
Information to the equipment installer 1-2

AxiSet™ Check-Up hardware basics 2-1
AxiSet™ Check-Up hardware components 2-1

System installation 3-1
Mounting the datum sphere 3-1
Establishing Z sphere centre for accurate probe length 3-3

Calibrating the probe 4-1

Maintenance 5-1

Parts list 6-1

This page is intentionally left blank.

Before you begin

Warranty

Unless you and Renishaw have agreed and signed a separate written agreement, the equipment and/or software are sold subject to the Renishaw Standard Terms and Conditions supplied with such equipment and/or software, or available on request from your local Renishaw office.

Renishaw warrants its equipment and software for a limited period (as set out in the Standard Terms and Conditions), provided that they are installed and used exactly as defined in associated Renishaw documentation. You should consult these Standard Terms and Conditions to find out the full details of your warranty.

Equipment and/or software purchased by you from a third-party supplier is subject to separate terms and conditions supplied with such equipment and/or software. You should contact your third-party supplier for details.

CNC machines

CNC machine tools must always be operated by fully trained personnel in accordance with the manufacturer's instructions.

Care of the system

Keep system components clean and treat the unit as a precision tool.

Patents

Features of the AxiSet™ Check-Up hardware and features of similar Renishaw products, are the subject of one or more of the following patents and/or patent applications:

CN 101331436
CN 101976056
CN 101976057
EP 2287687
EP 2287688
JP 5836314
TW I416290
US 8250952
US 8875603

Intended use

The AxiSet Check-Up hardware is used to accurately calibrate a Renishaw spindle probe, within a CNC machine tool and is typically used in conjunction with the AxiSet Check-Up macro software as a measurement artefact. AxiSet Check-Up macro software offers an easy and reliable process for analysing the performance of rotary axes on multi-axis machining centres and multi-tasking machines.

Safety

Information to the user

In all applications involving the use of machine tools, eye protection is recommended.

Information to the machine supplier/installer

It is the machine supplier's responsibility to ensure that the user is made aware of any hazards involved in operation, including those mentioned in Renishaw product literature, and to ensure that adequate guards and safety interlocks are provided.

If the probe fails, the probe signal may falsely indicate a probe seated condition. Do not rely on probe signals to halt the movement of the machine.

Information to the equipment installer

All Renishaw equipment is designed to comply with the relevant UK, EU and FCC regulatory requirements. It is the responsibility of the equipment installer to ensure that the following guidelines are adhered to, in order for the product to function in accordance with these regulations:

- Any interface MUST be installed in a position away from any potential sources of electrical noise, i.e. power transformers, servo drives etc.;
- All 0 V/ground connections should be connected to the machine "star point" (the "star point" is a single point return for all equipment ground and screen cables). This is very important and failure to adhere to this can cause a potential difference between grounds;
- All screens must be connected as outlined in the user instructions;
- Cables must not be routed alongside high current sources, for example, motor power supply cables etc., or be near high-speed data lines;
- Cable lengths should always be kept to a minimum.

AxiSet™ Check-Up hardware basics

AxiSet™ Check-Up hardware components

Recommended parts for use with AxiSet Check-Up (images are examples only):

Typical spindle probe
(Renishaw strongly recommends a RENGAGE™ strain gauge probe)

Test bar (tool of known length)

This page is intentionally left blank.

System installation

Mounting the datum sphere

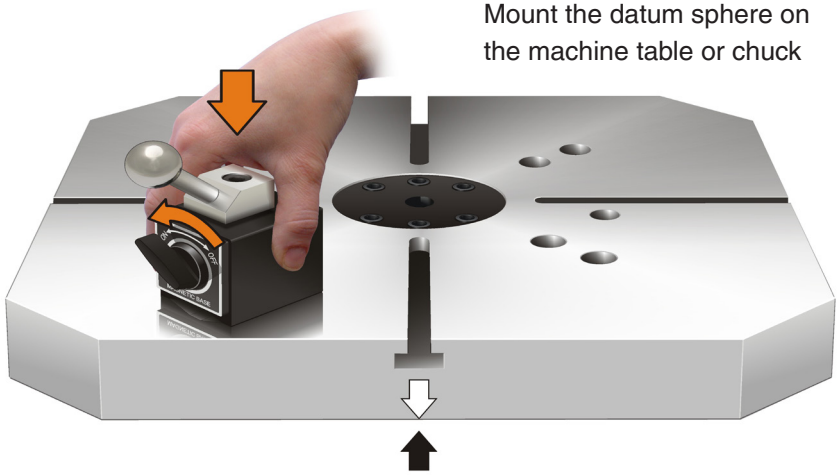
The datum sphere must be positioned in the machine at a suitable height and location to allow access by the measuring probe/stylus at all rotary axis angles required to perform the test. Check carefully for possible collisions.

To provide the clearance required for the stylus to measure the sphere, position the datum sphere stem at a position to avoid possible collision with the stylus.

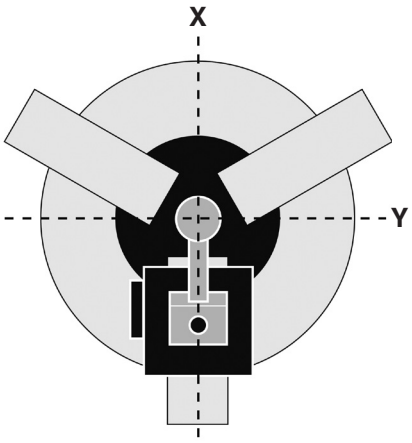
CAUTION: Ensure the working area is clear from swarf and debris when mounting the unit.

Mount the sphere to the CNC machine table or chuck and hold in place by moving the magnetic base rotary switch from OFF to ON.

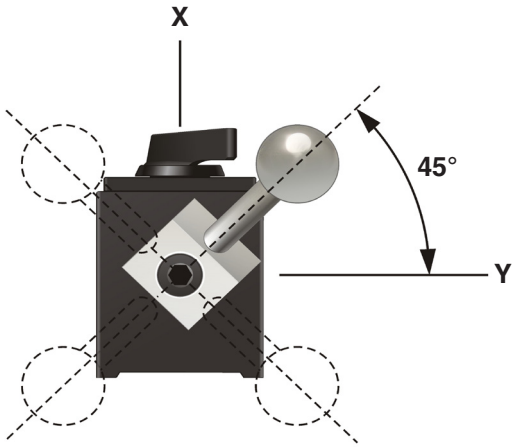
Mount the datum sphere on the machine table or chuck



Typical mill-turn lathe

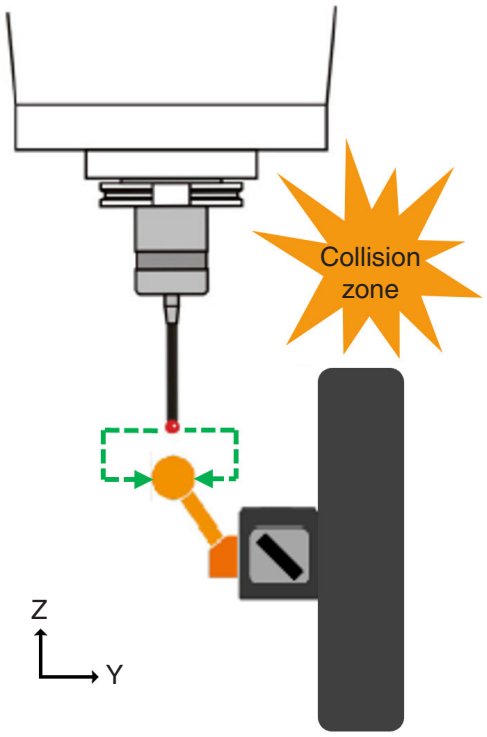


Typical milling machine



Ensure there is sufficient clearance to allow the stylus to reach the sphere without the spindle housing interfering with the table.

The spacer that is included with the AxiSet Check-Up hardware kit can be used to extend the position of the sphere to avoid collisions.

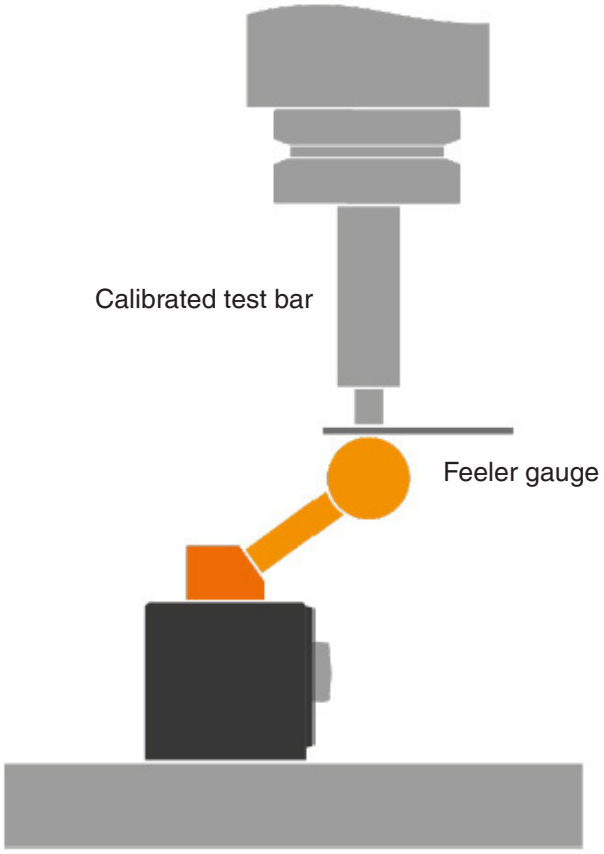


Establishing Z sphere centre for accurate probe length

Determining a very accurate probe length is vital prior to running a probe calibration cycle or running AxiSet Check-Up macro cycles.

NOTE: The test bar must be of an exact, known, calibrated length. Typically, this is etched on the bar itself or provided on a calibration certificate.

The recommended method for establishing the known Z position is shown below.



Z work co-ordinate system (WCS) = machine position – test bar – feeler gauge – sphere radius

This page is intentionally left blank.

Calibrating the probe

Checking multi-axis machine functionality is a complex process. To obtain comprehensive results, it is necessary to follow the documented AxiSet Check-Up macro software process exactly.

Ensure the probe is correctly calibrated. For detailed calibration instructions when using Renishaw cycles refer to the Inspection Plus programming guide for your CNC model.

For full details on how to install and run the AxiSet Check-Up macro software, please see the AxiSet Check-Up programming guide that is included with the macro software kit.

This page is intentionally left blank.

Maintenance

The AxiSet Check-Up hardware requires minimal maintenance and it has been designed to operate on all sizes of vertical and horizontal machining centres, multi-tasking machines and gantry machining centres.

CAUTION: Keep the AxiSet Check-Up hardware swarf free by brushing away any swarf residue that has accumulated.

It is recommended that the AxiSet Check-Up hardware is removed after use and before machining is commenced

This page is intentionally left blank.

Parts list

Type	Part number	Description
AxiSet Check-Up	A-5642-5001	AxiSet Check-Up hardware.
Software	A-5642-3001	AxiSet Check-Up app – includes licence.
Brochure	H-5642-8300	AxiSet Check-Up brochure.
Data sheet	H-5642-8200	Data sheet: *AxiSet Check-Up*.

For details of the AxiSet Check-Up macro software kits and for machine tool controller compatibility, refer to the *Probe software for machine tools – programs and features* data sheet (Renishaw part no. H-2000-2298) or visit **www.renishaw.com/machinetoolsoftware**

RENISHAW
apply innovation™

www.renishaw.com/axiset

#renishaw

+44 (0) 1453 524524 uk@renishaw.com

Part no.: H-5642-8501-03-B
Issued: 03.2023