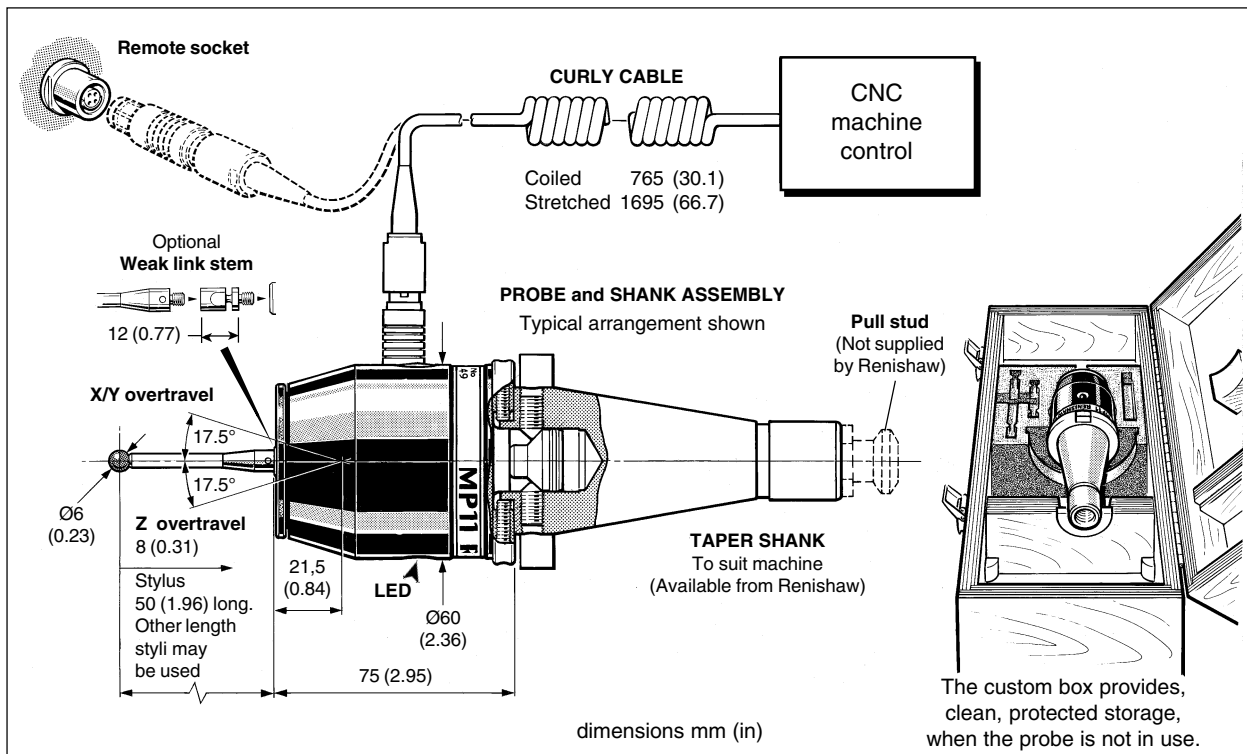


MP11 inspection system for CNC machining centres with manual tool change

The productivity gains obtained when probing on CNC machines with automatic tool change, are now available for CNC machines with manual tool change.



PROBE FEATURES

- 1. Direct signal transmission to the CNC machine control**
An interface unit is located inside the probe head. The interface process's signals between the probe and CNC machine control. Signals are transmitted along a curly cable. Connection to the probe is via a plug.
- 2. Visual indication of probe status.**
The illuminated LED switches off, every time the probe stylus contacts the workpiece.
- 3. External stylus spring pressure adjustment.**
A simple and rapid adjustment, which is sometimes needed when a heavy stylus combination is used.
- 4. Stylus on-centre adjustment**
Adjusters incorporated in the shank mounting, allow the stylus to be aligned with the spindle centre line.
- 5. Spindle mounted as any other tool in system**
Renishaw supply a range of shanks, modified to accept the MP11 probe.

MP11 PROBE SPECIFICATION

| | |
|--|--|
| Unidirectional repeatability Max 2 Sigma (σ) value. | Repeatability of 1,0 μ m (40 μ in) is valid for test velocity of 1000mm/min (3.28ft/min) at stylus tip. Using a stylus 50mm (1.97in) long. |
| Sense directions | $\pm X \pm Y +Z$. |
| Stylus trigger force X and Y directions. | 0,50 to 1,5N / 50 to 150gf (1.76 to 5.29ozf) |
| Z direction. | 1,8 to 7,0N / 180 to 700gf (6.35 to 24.69ozf). |

Stylus overtravel (maximum deflection)

| Stylus length | Sense direction | | |
|-------------------|-----------------------|-----------------------|-----------------|
| | X $\pm 17,5^\circ$ | Y $\pm 17,5^\circ$ | Z |
| 50mm (1.96in) | 21,5mm (0.84in) | 21,5mm (0.84in) | 8mm (0.31in) |
| 100mm (3.93in) | 36,5mm (1.43in) | 36,5mm (1.43in) | 8mm (0.31in) |

INTERNAL PROBE INTERFACE

The interface converts the probe signals into a solid state (SSR) voltage free output for the machine control. The output signal from the MP11 interface must be compatible with the CNC machine control.

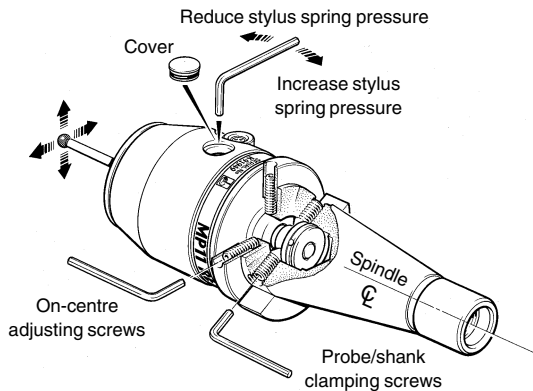
The MP11 output can be set to normally open (N/O) or normally closed (N/C) - see diagrams opposite.

Max voltage $\pm 50V$ DC peak. Max current 50mA peak.

- Ensure SSR supply is current limited.
- Route cable away from high current sources. e.g. cables, motors, and transformers.

STYLUS ON-CENTRE ADJUSTMENT

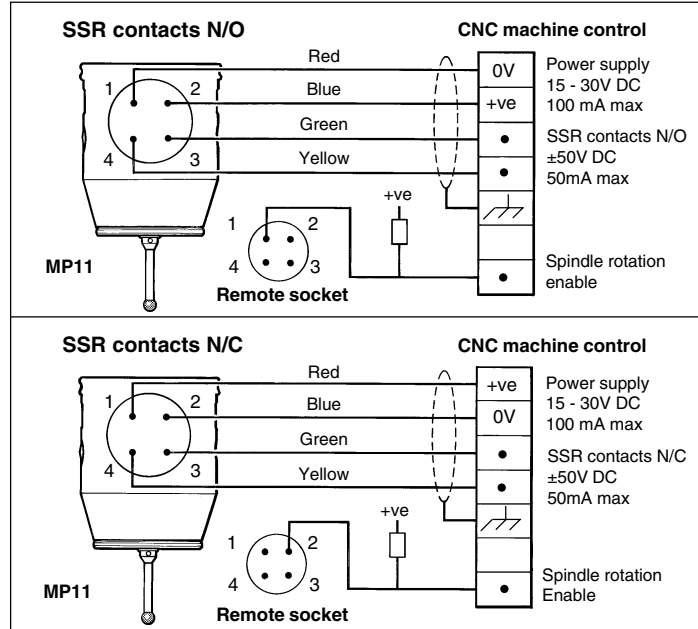
The stylus is aligned with the spindle centre line by adjusting four opposing probe grub screws, which act against the shank, causing the probe to move relative to the spindle centre line. When the correct setting is achieved, clamping screws are tightened to lock the probe to the shank.



OPERATOR SAFETY

It is recommended that a fail safe SPINDLE ROTATION INHIBIT is built into the system. Suggested circuits are described below.

One end of the curly cable is permanently connected to the machine control. The plug at the other end of the curly cable is parked in a remote socket and spindle rotation is enabled. When the plug is removed from the remote socket and transferred to the MP11 socket spindle rotation is inhibited. This arrangement automatically prevents spindle rotation when the probe is in use. The remote socket should be located in a clean area, and protected with a cover when the plug is removed.



Parts List - Please quote the Part No. when ordering equipment

| Type | Part No. | Description |
|-----------|------------------|---|
| MP11 | A-2045-0003 | MP11 probe. |
| MP11 | A-2045-0001 | MP11 probe with curly cable, tool kit and wooden storage box. |
| MP11 | A-2045-0005 | MP11 probe with stylus, curly cable, DIN 2080 40 shank, tool kit and wooden storage box. |
| MP11 | A-2045-0006 | MP11 probe with stylus, curly cable, DIN 2080 45 shank, tool kit and wooden storage box. |
| MP11 | A-2045-0007 | MP11 probe with stylus, curly cable, DIN 2080 50 shank, tool kit and wooden storage box. |
| MP11 | A-2045-0009 | MP11 probe with stylus, curly cable, DIN 69871 30 shank, tool kit and wooden storage box. |
| MP11 | A-2045-0010 | MP11 probe with stylus, curly cable, DIN 69871 40 shank, tool kit and wooden storage box. |
| MP11 | A-2045-0011 | MP11 probe with stylus, curly cable, DIN 69871 50 shank, tool kit and wooden storage box. |
| MP11 | Contact Renishaw | MP11 probe with accessories and ANSI B5.50-1985 (CAT) or BT shank. |
| Cable | A-2045-0051 | Curly cable - coiled 765mm (30.1in). stretched 1695mm (66.7in). |
| DK1 | A-2051-7105 | Outer diaphragm replacement kit. |
| TK1 | A-2053-7531 | Probe head tool kit. |
| Hex key | P-TLO1-0250 | Hexagon key 2,5mm AF (supplied in addition to tool kit TK1). |
| Socket | P-CN21-0304 | Remote socket for spindle inhibit. |
| Cover | P-CN21-0602 | Protective cover for remote socket. |
| Stylus | A-5000-3709 | Ceramic stylus 50mm long with $\varnothing 6mm$ ball. |
| Weak link | M-2085-0069 | Weak link stem. |
| Styli | — | See Brochure H-1000-3200 Styli and accessories. |
| Shanks | — | See Data Sheet H-2000-2011 Taper shanks. |
| Software | — | See Data Sheet H-2000-2289 Software for machine tools. |

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