

New low-cost probe head for CMMs offers automated functionality

Renishaw's new RTP20 compact probe head for DCC co-ordinate measuring machines (CMMs) offers low-cost 'motorised' head functionality and integral TP20 touch-trigger probe.

Renishaw, the world leader in sensor technology for co-ordinate measuring machines (CMMs) is introducing RTP20 ('round the pole'), a unique low-cost probe head with integral probe sensor, that offers the functionality and benefits of a motorised head system. Based on Renishaw's existing MH20i probe head, it allows automatic repeatable 15-degree indexing which, combined with an integral TP20 touch probe, offers a flexible touch-trigger probe system for DCC CMMs that will significantly increase measurement productivity.

The new RTP20 probe head allows the integral probe to be moved to 168 repeatable positions in 15-degree increments using both A and B axes, allowing a one-time only qualification for a stylus tip position. This eliminates the need for costly time consuming re-qualification routines, ensuring fast throughput for part inspection. Users can therefore easily access features to be measured, and optimise system performance by ensuring the probe is applied to the surface at the best angle to achieve accurate measurements.

'Automated' indexing of the manual RTP20 probe head is realised through an innovative process, which uses the motion of a CMM to achieve 'motorised' head style operation. This indexing process comprises three separate operations as follows:

- An external locking lever on the probe head is driven against a dedicated sphere that is mounted to a pole located on the bed of the CMM, thus unlocking the head.
- The CMM motion is then used to engage a drive-cup, located in the head's 'A'-axis swivel, with the pole-mounted sphere, enabling rotation of the head in the 'A' and 'B' axes, by driving around the pole. Both axes can be re-orientated using the same unlock operation, increasing the efficiency of the operation. Once the head is in position, the drive-cup is disengaged from the sphere.

- The indexing operation is completed by again using the CMM motion to operate the locking lever against the pole-mounted sphere, thus locking the head. The head is now ready to measure a feature.

The integral TP20 probe mount provides compatibility with all existing TP20 modules. Repeatable interchange between qualified probe modules, coupled with repeatable indexing, gives maximum productivity. Although modules can be changed manually, unlike the MH20i, the RTP20 can be used with the MCR20 module change rack, allowing fully automated module changing. The integral probe mount also optimises the working volume of the CMM.



The existing range of TP20 modules provides a selection of trigger forces and directional sensing options as well as increased reach with EM1 and EM2 extension bars. The magnetic kinematic joint provides crash protection in the event of accidental collision.

For CMM users, RTP20 offers low-cost entry-level motorised head capability, with repeatable indexing at 15-degree increments in both A and B axes. It can be installed on new and existing measuring machines via a shank mounting, with the initial qualification of each measuring position and stylus combination being all that is required. The RTP20 is fully supported by all standard CMM controllers, including Renishaw's UCC controller family.