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# RTP20 compact probe head

## RTP20 offers low-cost 'motorised' head functionality with integral TP20 touch-trigger probe

The RTP20 is a compact probe head with DCC capability and integral TP20 touch-trigger probe.

The RTP20 probe head allows the integral TP20 probe to be moved to 168 repeatable positions in 15-degree increments using both A and B axes, requiring a one-time only qualification for each stylus tip position. This eliminates the need for costly time consuming re-qualification routines, ensuring fast throughput for part inspection.

Automated indexing of the 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 operations as follows:

- An external locking lever on the probe head is driven against a dedicated sphere 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.




RTP20 integral TP20 probe mount optimises the working volume of the CMM and provides compatibility with all existing TP20 modules. Although modules can be changed manually, the RTP20 can be used with the MCR20 module change rack, allowing fully automated module changing.

RTP20 can be installed on new and existing measuring machines via a shank mounting, involving just the initial qualification of each measuring position and stylus combination. The new probe head is fully supported by all standard CMM controllers, including Renishaw's UCC controller family.

## Benefits

**Productivity**

Improved productivity is achieved via probe module changing and automated indexing without the need for constant re-qualification.

**Increased reach and flexibility**

A built-in extension together with existing extension bars allow reach up to 168 mm (including maximum stylus length).

## Innovations

**Automation**

Utilising the CMM motion to lock, unlock and orientate the head, together with the MCR20, provides a fully automated system.

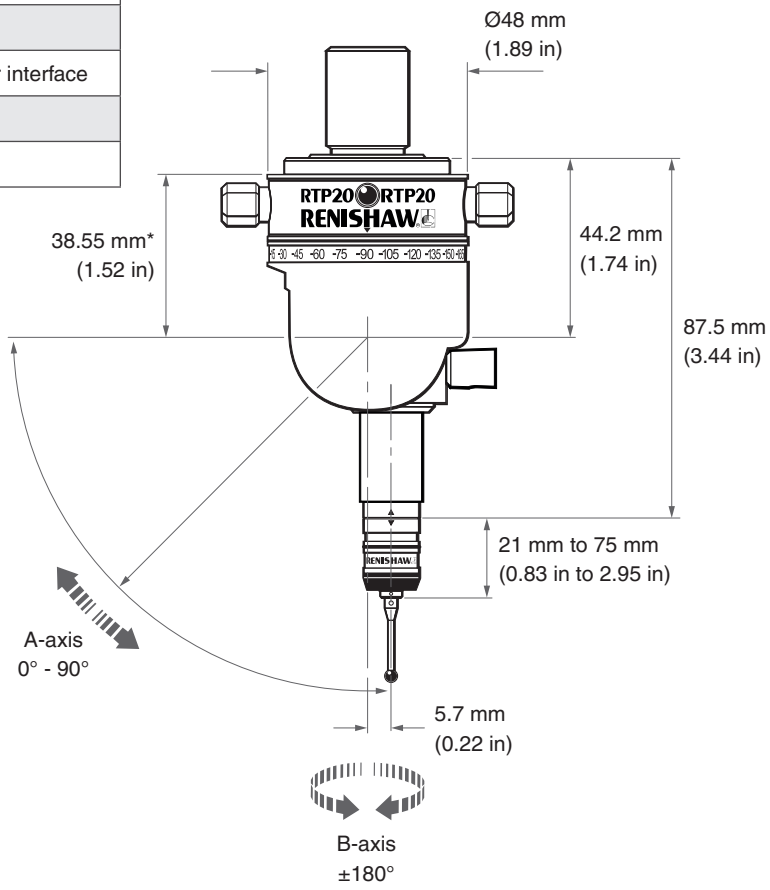
**Crash protection**

TP20 modules have overtravel in all directions. The magnetic mounting provides additional crash protection in X and Y.

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# Specification

| | |
|---|---|
| **Weight** | 208 g (not including shank) |
| **Probe mounting** | TP20 kinematic mount |
| **Head mounting** | MS range of shanks |
| **Suitable interface** | Standard touch-trigger interface |
| **Probe status indication** | 1 LED |
| **Cable connection** | 5-pin DIN 180° socket |




* Shank mounting face

## TP20 modules

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.

A range of seven, application specific, stylus modules is available:

| Module | Stylus length | | Overall reach |
|---|---|---|---|
| | Minimum | Maximum | |
| Low force (LF) | 10 mm (0.39 in) | 30 mm (1.18 in) | 94 mm (3.70 in) |
| Standard force (SF) | 10 mm (0.39 in) | 50 mm (1.97 in) | 114 mm (4.49 in) |
| Medium force (MF) | 10 mm (0.39 in) | 60 mm (2.36 in) | 124 mm (4.88 in) |
| Extended force (EF) | 10 mm (0.39 in) | 60 mm (2.36 in) | 124 mm (4.88 in) |
| 6-way (6W) | 10 mm (0.39 in) | 30 mm (1.18 in) | 98 mm (3.86 in) |
| EM1 | 10 mm (0.39 in) | 50 mm (1.97 in) | 143 mm (5.63 in) |
| EM2 | 10 mm (0.39 in) | 50 mm (1.97 in) | 168 mm (6.61 in) |

## MCR20 module changing rack

The MCR20 probe module changing rack is designed to securely store TP20 stylus modules ready for rapid automatic changing, whilst protecting mating surfaces from any airborne contaminants within the working environment.

## Additional information

A variety of shanks is available for RTP20. To select the correct kit for your machine, contact your local Renishaw subsidiary.

For information regarding TP20 please refer to www.renishaw.com/TP20 or see TP20 flyer (H-1000-3169).

**www.renishaw.com/RTP20** **#renishaw**


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