

## MM-33 MICROMANIPULATOR



(Shown: MM-33A/R)

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### FEATURES MM-33

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- Compact design allows use in tight environments
- Rack and pinion drive gives stable movement with minimal backlash
- Cross-loaded roller bearings for smooth, low friction movement
- Vertical axis lock

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### OPTIONS MM-33

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- Rotating base allows horizontal rotation and vertical tilting
- Magnetic feet
- Tilting mount for fine X-axis



Successfully used in conjunction with our other micromanipulators, the MM-33 is available separately for those in need of a small, practical instrument in applications not requiring submicron accuracy.

The MM-33 is the right choice for tight environments which require maximum versatility within a small space. A vertical lock is added to secure the vertical axis in position. The optional rotating base and tiltable X-axis provide even further flexibility.

Stainless steel cross-loaded roller bearings are designed to offer low friction and smooth linear motion with a minimum of side play. The pre-loaded rollers are set at 90 degrees to the hardened steel guides insuring constant contact and accuracy. This precise rack and pinion drive gives stable, drift-free movement with minimal backlash. The controls are placed one above the other which makes for less hand movement and easier positioning. The scales for all axes are calibrated in 0.10mm increments and the fine micrometer adjustment for the X-axis thrust is calibrated at 0.01mm with estimates to 5 $\mu$ m.

The optional rotating base extends the utility of the MM-33 by providing two additional rotating planes. The rotation in the horizontal plane (approximately 120 degrees) has a positive stop, quick release mechanism for fast insertion and removal of pipettes. The second rotating axis allows the MM-33 to be tilted in a vertical plane from 0 to 70 degrees. The optional tiltable X-axis allows the fine axis to be tilted up to 45 degrees. This option should be ordered at the time of purchase since the modifications require factory installation.



*(Shown: MM-33)*



## INDIVIDUAL EXCURSIONS ARE AS FOLLOWS:

X-axis coarse movement: 37mm

X-axis fine movement: 10mm

Y-axis horizontal movement: 20mm

Z-axis vertical movement: 20mm