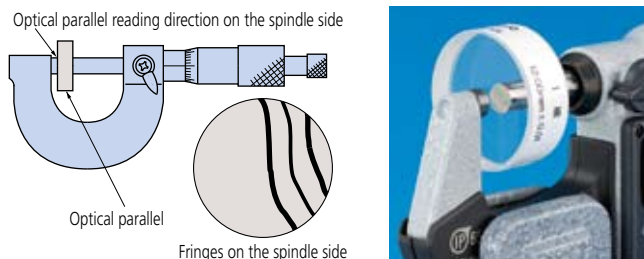


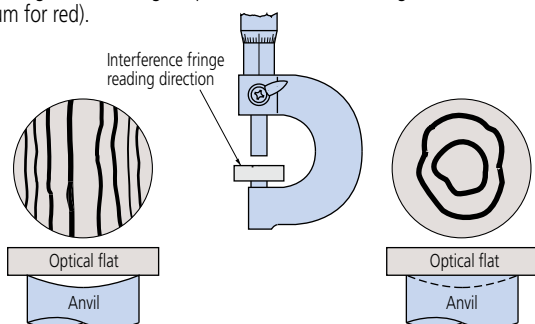
Testing Parallelism of Micrometer Measuring Faces



Parallelism can be estimated using an optical parallel held between the faces. Firstly, bring the parallel to the anvil measuring face. Then close the spindle on the parallel using normal measuring force and count the number of red interference fringes seen on the measuring face of the spindle in white light. Each fringe represents a half wavelength difference in height ($0.32\mu\text{m}$ for red fringes). In the above figure a parallelism of approximately $1\mu\text{m}$ is obtained from $0.32\mu\text{m} \times 3 = 0.96\mu\text{m}$.

Testing Flatness of Micrometer Measuring Faces

Flatness can be estimated using an optical flat (or parallel) held against a face. Count the number of red interference fringes seen on the measuring face in white light. Each fringe represents a half wavelength difference in height ($0.32\mu\text{m}$ for red).

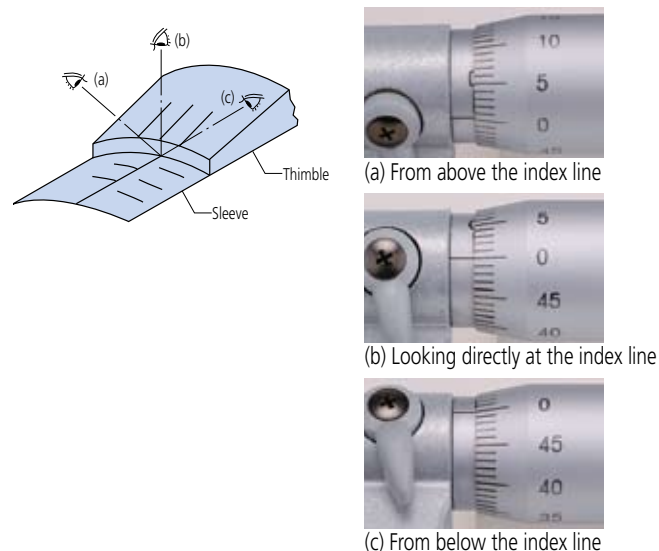


Measuring face is curved by approximately $1.3\mu\text{m}$. ($0.32\mu\text{m} \times 4$ paired red fringes.)

Measuring face is concave (or convex) approximately $0.6\mu\text{m}$ deep. ($0.32\mu\text{m} \times 2$ continuous fringes)

General notes on using the micrometer

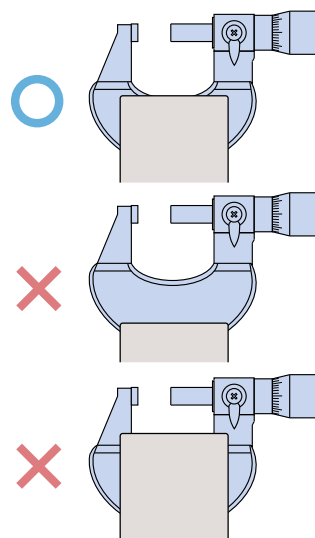
- Carefully check the type, measuring range, accuracy, and other specifications to select the appropriate model for your application.
- Leave the micrometer and workpiece at room temperature long enough for their temperatures to equalize before making a measurement.
- Look directly at the fiducial line when taking a reading against the thimble graduations. If the graduation lines are viewed from an angle, the correct alignment position of the lines cannot be read due to parallax error.



- Wipe off the measuring faces of both the anvil and spindle with lint-free paper set the start (zero) point before measuring.



- Wipe away any dust, chips and other debris from the circumference and measuring face of the spindle as part of daily maintenance. In addition, sufficiently wipe off any stains and fingerprints on each part with dry cloth.
- Use the constant-force device correctly so that measurements are performed with the correct measuring force.
- When attaching the micrometer onto a micrometer stand, the stand should clamp the center of the micrometer frame. Do not clamp it too tightly.



- Be careful not to drop or bump the micrometer on anything. Do not rotate the micrometer thimble using excessive force. If you believe a micrometer may have been damaged due to accidental mishandling, ensure that it is inspected for accuracy before further use.
- After a long storage period or when there is no protective oil film visible, lightly apply anti-corrosion oil to the micrometer by wiping with a cloth soaked in it.
- Notes on storage:
 - Avoid storing the micrometer in direct sunlight.
 - Store the micrometer in a ventilated place with low humidity.
 - Store the micrometer in a place with little dust.
 - Store the micrometer in a case or other container, which should not be kept on the floor.
 - When storing the micrometer, always leave a gap of 0.1 to 1 mm between the measuring faces.
 - Do not store the micrometer in a clamped state.