2. Measuring and Inspection Tools

Brief Information:

Measuring and inspection tools are used to ensure accuracy and precision in manufacturing. These tools help maintain dimensional accuracy, check surface finishes, and verify tolerances in manufactured components.

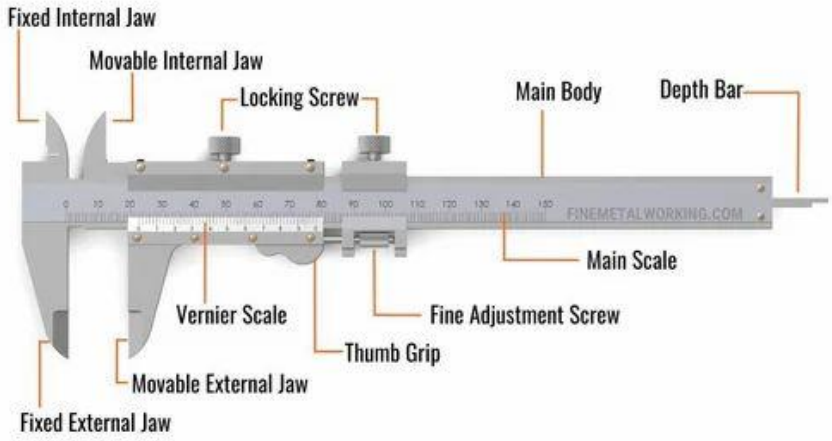
Types of Measuring and Inspection Tools:

1. **Linear Measuring Tools** – Measure length, width, and height.
2. **Precision Measuring Tools** – Provide highly accurate measurements.
3. **Surface Inspection Tools** – Check roughness, defects, and flatness.

Examples and Their Details:

a) Vernier Calipers

- Used to measure internal and external dimensions with high accuracy.
- Available in **dial, digital, and manual** versions.



b) Micrometers

- Used for precise measurement of small dimensions.
- **Types:** Outside micrometer, inside micrometer, depth micrometer.

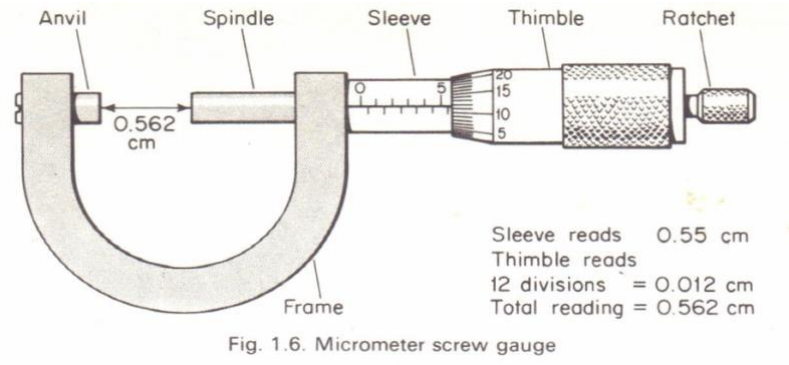
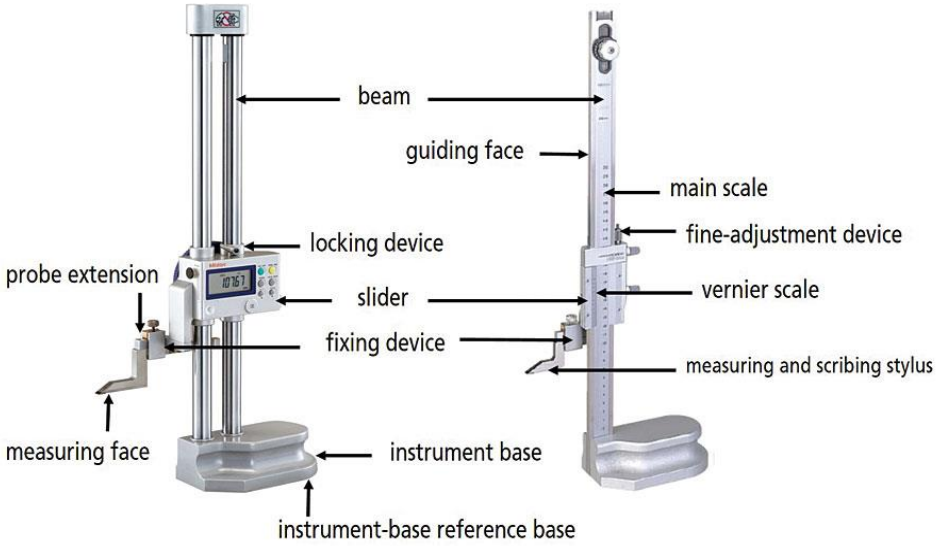


Fig. 1.6. Micrometer screw gauge

c) Height Gauges

- Used for marking and measuring the height of components.

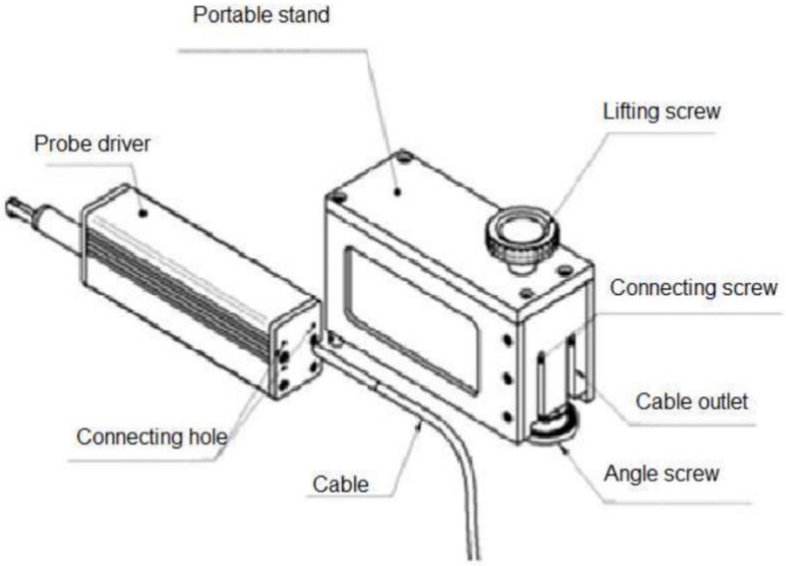


d) Coordinate Measuring Machine (CMM)

- Measures complex 3D components with high precision.

e) Surface Roughness Tester

- Checks the smoothness of a surface to ensure quality standards.


Portable stand
Lifting screw
Probe driver
Connecting screw
Cable outlet
Connecting hole
Angle screw
Cable