IS 4381: 1967 Pathological Microscopes

Pathological microscopes in India are advanced instruments designed for the precise examination of biological samples, such as tissues, blood, and cells, to aid in disease diagnosis and research. These microscopes feature high-resolution optics, a range of magnification options, and superior illumination systems, ensuring accurate and detailed analysis. They are commonly used in hospitals, diagnostic labs, and research institutions for tasks like histopathology, cytology, and microbiology. With the increasing demand for accurate diagnostics, these microscopes are crucial in supporting healthcare professionals to identify diseases at an early stage and make informed treatment decisions.

The Indian Standard, IS 4381: 1967 outlines the specifications for pathological microscopes in India, ensuring high-quality standards for both performance and construction. The standard covers essential aspects such as dimensions, materials, and design. Microscopes must be either of the hinged or non-tilting limb type, with provisions for adjustable tubes and smooth movement of the focusing mechanism and stage. The optical system requires objectives with specific magnifications (10x, 40x, and 100x) and numerical apertures, along with a condenser that matches or exceeds the aperture of the highest objective. The microscope must also feature an iris diaphragm, fine and coarse focusing controls, and a smooth-moving mechanical stage with vernier graduations.

The standard specifies rigorous mechanical and optical tests, including alignment checks, resolution, and absence of distortion. The microscope must meet strict optical performance criteria to ensure sharp, high-contrast images free of spurious color effects. The packaging guidelines ensure safe delivery, with secure placement of the microscope and accessories in a wooden case, including silica gel to prevent moisture damage.

IS 4381: 1967 ensures that pathological microscopes in India are built to precise specifications, offering reliable performance and durability for medical diagnostics and research. By adhering to this standard, manufacturers can deliver microscopes with consistent optical clarity and mechanical stability, helping healthcare professionals make accurate diagnoses.