

Microscopy

Accurate measurements in 3 dimensions



Reflex Microscope



Reflex Microscopes

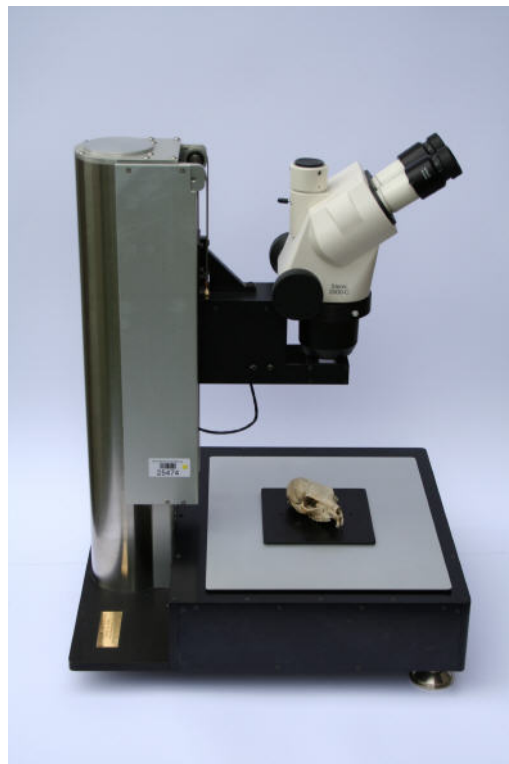
Measurements in 3 Dimensions

Reflex Microscopes are used in research institutes, hospitals, museums and universities throughout the world where accurate measurements of artefacts in 3 dimensions are required.

Reflex Microscope

The Reflex Microscope provides a non-contact method of measuring three dimensional coordinates at selected points on objects placed in the field of view. The points are selected by the user and are recorded on a linked PC computer for subsequent analysis.

- High Precision measurement of X, Y and Z Co-ordinates.**
- Binocular Zeiss optics allowing selected magnification.**
- Large spatial measurement range.**
- Measurement location is indicated as a spot of light in the field of view.**
- Used in many laboratories and research institutes throughout the world.**
- Applications include palaeontology, dentistry, forensic science, medical research.**
- Can be used to take measurements on all types of surfaces including reflective, rough and fragile materials.**
- Measurement data is recorded for further analysis by the user.**



Principle of Operation

The object is viewed through an adapted stereo microscope, where a small light spot appears in the field of view. The object is moved using the motorised stage until the point to be measured coincides with the spot. The depth co-ordinate is set by the observer using stereoscopic vision to locate the spot "on" the surface of the object. The X,Y and Z co-ordinates are monitored continuously via linear encoders and can be stored on command in the computer. The object stage, driven by motors, can be guided manually, using a high resolution joystick, or automatically under software command, allowing movements to be constrained if required to predetermined planes or directions, or to pre-set patterns.

Technical Specification

Viewing Magnification: x 6.5 to x 50

Zoom Co-ordinate readout resolution: 1 micron

Working distance [Z] 65 mm

Measuring range: 110 mm [X, Y], 180 mm [Z]

Light spot diameter: 2.5, 5,10 or 20 microns,

Absolute accuracy across measuring range: better than ± 3 microns in X & Y, better than ± 4 microns in Z

Repeatability: better than ± 2 microns in X, Y and ± 6 microns in Z

The installation procedure includes a calibration routine using a special artefact.



High Precision Large Working Range

The working distance of 65 mm ensures that objects with highly sloped topography can be measured, and the measuring range of 180 mm in Z and 110 mm in X and Y ensures that a wide size-range of objects can be accommodated. Thus the microscope is capable of characterising both a vole tooth and a primate skull with the same degree of accuracy. The observer, by rotation of the specimen and the judicious use of reference points, can map relationships between any other points on the object surface.

Some users of the Reflex Microscope

University of Zurich	State University of New York
University of Utrecht	London Hospital Dental School
University College, London	University of Madrid
University of Alberta	University of Iowa
Guys Dental School	University of Michigan
Eastman Dental Clinic	University of Tubingen
University of Cape Town	University of Leipzig
North-Western University	Rutgers University
University of Liverpool	Humboldt University of Berlin
Duke University	Royal London Hospital
University of Bristol	Bristol Dental School
Rutherford Appleton Laboratory	Johns Hopkins University

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