

X & Z Axis Measuring Machine



Model A-I with 7" Vertical and 6" Horizontal Capacity.
Model A-II with 7" Vertical and 12" Horizontal Capacity.

The Titan Measuring A-I and A-II Microscope-Telescope-Videoscope is a highly versatile instrument that is provided with a sophisticated optical tube that comes standard as a 25X and 50X Microscope, and with the purchase of an optional 10X Objective, can be converted to a 100X Microscope.

This unique instrument is easily converted to a 7X Visual Telescope by removing the 2.5X and 5X Microscope Objectives and extending the optical tube.

Further conversion to a VIDEO SCOPE, be it for Microscope or Telescope Applications, is by removing the Eyepiece and purchasing the Video Adapter (Order #X-Z Video Tube), which extends the eyetube for video. The Video Lens Adapter #TSTVA-12 is also necessary as it contains the Cross Hairs and Reticle.

The Optical Tube has a Reticle in the Eyepiece that has Crosshairs and further divisions into 30° segments. This Optical Tube can be utilized in a Vertical or Horizontal Position.

The Measuring capability of the unit is provided by a Vernier Scale reading directly in .001" divisions over 6" or 12" Horizontal range and 7" Vertical range. The scales are easily read with a 10X Magnifier providing for magnification of the scales. If necessary, the horizontal readings can be calibrated to closer accuracies by using GAGE BLOCKS between two adjustable reference points. Movement in both Axis is controlled by a rack and pinion adjustment giving fingertip control over the entire range.

The base is constructed out of a seasoned meehanite casting with hand scraped ways for the highest accuracies. A spring adjustment assures perfect alignment. A liquid level mounted on the horizontal carriage assures flatness when all legs are perfectly leveled.

The Optical Tube, whether it is used as a Microscope or Telescope, can be rotated 360° on its own axis so that the optics can be used in any position, vertical or horizontal any angle. If used in a horizontal position, there is a 0.0005" per foot separate level to assure perfect horizontal positioning of the Optical Tube.

Telescope applications are possible from 17" to infinity by eye

If the Optical Tube is used in a Vertical position as a Microscope, two viewing positions are possible for workpieces. They can be mounted on a special steel plate attached to the rear of the unit directly under the Optical Tube. This is ideal for small parts. The second alternative is to remove this plate, which is attached with two allen screws, and bridge it over larger workpieces, as for example, a Printed Circuit Board.

The Titan A Series combines the best of all worlds. It allows you to MEASURE, ALIGN, and VIEW as a Microscope or Telescope and, if desired, project the image on a VIDEOMONITOR at an extremely low cost. It will function at working distances where it is impossible to use conventional Microscopes or Telescopes. It is easy to focus and read properly on its accurate vernier scales. It is an ideal instrument for QUALITY CONTROL.

USES:

LABORATORY: Liquids in containers to measure levels, creep, expansion, rise and other physical phenomena, radioactive materials in containers and through viewing windows. Measure and Alignment in Pressure and Vacuum Chambers.

RESEARCH: Plotting and checking reference points on Television and Radio Tubes, X-Rays and printed circuits. Miniature parts, angular movements correlating X & Z movement with angles to find tangent points or lines. Surface finish, oscillograph deviations, measurements of small compressible or fragile objects.

TOOLROOM AND MACHINE SHOP AND MODEL SHOP: On the spot inspection of dies for wear and size in the assembled stage. Miniature screw machine parts. Thread measurements for: Threads per inch count. Visual inspection for burrs, slivers, stripping and drunken helix. Outside and root diameters, lead, thread angle and form. Casting on the surface plate for inaccessible and recessed holes and slots where mechanical instruments cannot reach.

PRODUCTION: Spindle run-out. Size while cutter is still moving. Size on big castings or wall paper and plastic printing rolls. Aerial photos and standards for location.

MECHANICAL DATA

MEASURING CAPACITY:

Model A-I 7" Vertically & 6" Horizontally.

Model A-II 7" Vertically & 12" Horizontally.

WEIGHT: 18 lbs.- Model A-I 22 lbs.- Model A-II

SIZE: 15" X 14" X 7"- Model A-I 15" X 19" X 7"- Model A-II

MATERIAL: Base and Carriage seasoned meehanite casting.

Legs: Hard Chromed & adjustable.

Vertical Post: Steel.

SURFACE PLATE: Located on rear of base casting 2" X 12" for model A-I and 2" X 19" for model A-II, removable with 2 Hex Head Screws, ground finish.

LEVEL ACCURACY: On Vertical Post .0005" per foot. Same for both models.

VERNIER SCALE: Viewable through 10X optically corrected magnifier. Horizontal axis is 9" long on model A-I. 13" long on model A-II, .001" Divisions. Vertical Axis 7" long 0.001" Divisions.

PROTRACTOR: On Vertical Post reads 20°-10°-0°-10°-20° or 90° to the other protractor for rotating the eyetube 90°. A fine adjustment to rotate from vertical to horizontal.

GAGE BLOCK DEVICE: Zeroable with adjustable hardened lock nut which reacts against a post on the carriage.

OPTICAL DATA: See information below. (Same for A-I & A-II)

RETICLE: Cross lines at 30° intervals covering 360° with 0°, 30°, 60°, 90°, 120°, 150° & 180° marked on reticle.

MAGNIFIER: 2-10X magnification loupes for reading Vernier Scales on both the Vertical and Horizontal Axis.

MAGNIFICATION DATA

MICROSCOPE:

50X MAGNIFICATION:

Field of View - 0.1142" (2.9mm)

Focal Length - 0.9840" (25mm)

25X MAGNIFICATION:

Field of View - .2096" (5.3mm)

Focal Length - 1.9675" (30mm)

TELESCOPE:

Magnification: 5.5X

Minimum Focal Length: 39"

Maximum Focal Length: Infinity

Field of View at 39" - 3" Approximately

The unit can be used as a microscope or telescope with the optical tube in either a vertical or horizontal position. To convert to a telescope from a microscope, unscrew both microscope objectives at first & second knurled ring in front of eyetube and extend tube.

OBJECTIVES:

A: 2.5X -Microscope

B: 5X - Microscope

D: 5.5X -Telescope

OCULAR: 10X

VIDEO MICROSCOPE:

5X Objective:Magnification 112X-142X Depending on Optical Tube Length. 2.5X Objective:Magnification 60X-88X Depending on Optical Tube Length.

VIDEO TELESCOPE:

Magnification - varies depending on Camera Chip Size and Monitor Size used.

12" Minimum Focal Length to Infinity

Ordering Information

| Model Number | Description | Price |
|-----------------------|--------------------------|-------------|
| A-1 | 7" V X 6" H Measuring | \$ 2,290.00 |
| A-2 | 7" V X 12" H Measuring | \$ 2,590.00 |
| Accessories & Options | | |
| X-Z Video Tube | Eye Piece Extension Tube | \$ 110.00 |
| TSTVA-12 | " C" Mount Video Adapter | \$ 435.00 |