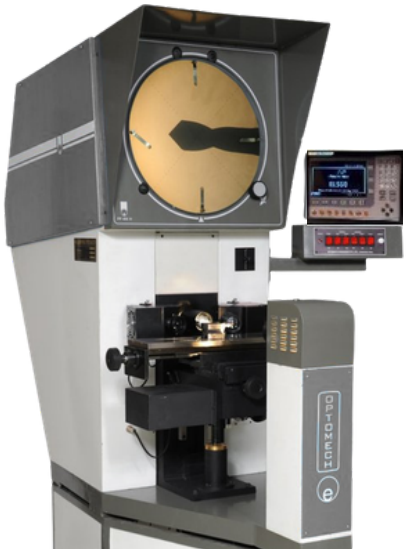
OPTOMECH
Your Quality Our Vision

PP 300TE

PP 600V



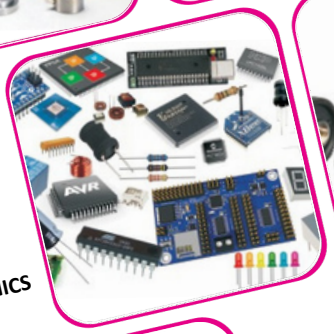
PP 400H

NUCLEAR

AEROSPACE

DIES & MOLDS

MACHINE TOOLS



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# Optical Profile Projector

Optomech Profile Projectors are widely used for measuring complex shapes in mechanical components such as stampings, gears, cams, threaded parts, and other precision components.

Designed with an ergonomic and user-friendly structure, Optomech Profile Projectors provide an excellent balance of optical performance, measurement accuracy, and ease of operation. The systems incorporate high-resolution optics, precision mechanical components, and advanced metrology features, along with a wide range of optional accessories.

Optomech offers both Vertical and Horizontal models to suit different measurement applications.
In Vertical models, the optical axis is parallel to the projection screen, making them suitable for flat components or smaller workpieces.

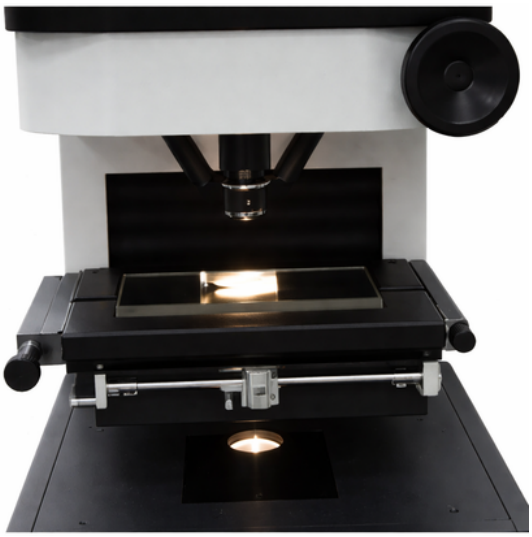
In Horizontal models, the optical axis is perpendicular to the projection screen, making them ideal for shaft-type parts or larger workpieces.

## High-Resolution Telecentric Projection Lenses with Low Distortion and High Magnification Accuracy

Conventional lenses exhibit variations in magnification when the object distance from the lens changes.
In contrast, telecentric projection lenses maintain constant magnification regardless of object distance, ensuring accurate and consistent measurements. A telecentric projection lens produces images of the same size for objects at different distances, minimizing measurement errors caused by perspective distortion.


Projection lenses ranging from 5X to 100X magnification are available. All lenses are parfocal, maintaining the same focus distance for convenient magnification changes.

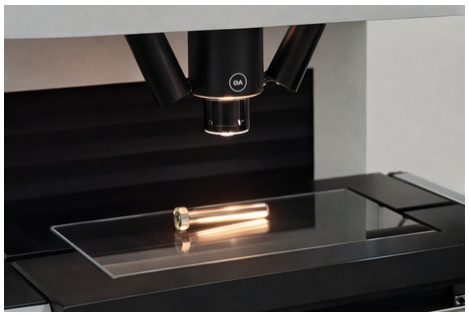
These low-distortion projection lenses deliver high magnification accuracy for precise measurements under both contour and surface illumination.




Vertical Projection Models incorporate precision X–Y stages that move smoothly on roller guideways. The unique screwless design with a quick-release mechanism allows for rapid and convenient stage movement.

Horizontal Projection Models incorporate heavy-duty stages with motorized movement, operating on ball screws and precision linear motion guides for smooth and accurate positioning.

## Halogen Light Source for Profile and Surface illumination



Profile illumination is provided through a collimated beam of condensed light using specially designed optical condensing lenses for clear and accurate profile projection.

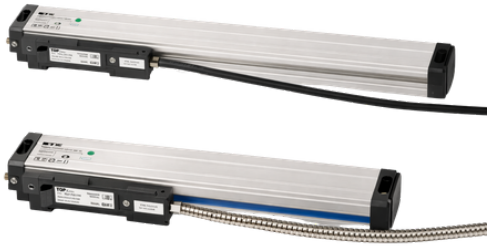
Surface illumination is achieved through twin fiber-optic light guides powered by a cold light source, ensuring uniform lighting for precise surface inspection.

## Digital Readout with Advanced Metrology Software and Optical Edge Detection

Microprocessor-based 3-axis Digital Readout (DRO) systems with user-friendly metrology software enable precise and efficient measurement. The system features a Graphical User Interface (GUI) with advanced computer-aided measuring functions and supports reverse engineering applications.

The Optical Edge Detector option provides highly accurate and consistent measurement results by reducing operator subjectivity and fatigue, while improving productivity through automatic point detection.

## High-Resolution Linear and Rotary Encoders

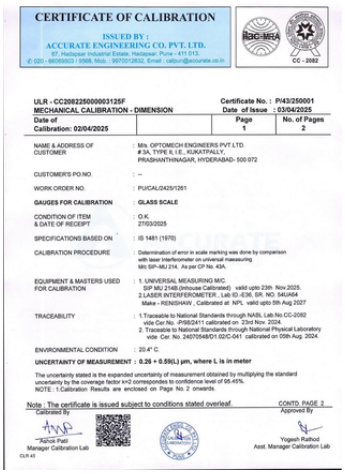


The X and Y measuring coordinates of the DRO system are obtained through high-precision linear encoders, ensuring reliable and accurate positional measurement.

The angular measurement coordinates are obtained through high-resolution rotary encoders, providing precise rotational positioning for measurement applications.

## Calibration with Master Glass Scale (Traceable to NABL)

CERTIFICATE NO.: C-0068


CERTIFICATE OF CALIBRATION

ISSUED BY :
ACCURATE ENGINEERING CO. PVT. LTD.

ULR - CC208225000003125F
MECHANICAL CALIBRATION - DIMENSION
Certificate No. : P/43/250001
Date of Issue : 03/04/2025
Date of Calibration: 02/04/2025
Page 1
No. of Pages 2

| | |
|---|---|
| NAME & ADDRESS OF CUSTOMER | M/s. OPTOMECH ENGINEERS PVT.LTD. #3A, TYPE II, I.E., KUKATPALLY, PRASHANTHINAGAR, HYDERABAD- 500 072 |
| CUSTOMER'S PO.NO. | -- |
| WORK ORDER NO. | PUCAL/0425/1261 |
| GAUGES FOR CALIBRATION | GLASS SCALE |
| CONDITION OF ITEM & DATE OF RECEIPT | O.K. 27/03/2025 |
| SPECIFICATIONS BASED ON | IS 1481 (1979) |
| CALIBRATION PROCEDURE | Determination of error in scale marking was done by comparison with laser interferometer on universal measuring Mtc SIP-MU 214. As per CP No. 43A |
| EQUIPMENT & MASTERS USED FOR CALIBRATION | 1. UNIVERSAL MEASURING M/C, SIP MU 2148 (Inhouse Calibrated) valid upto 23th Nov.2025. 2.LASER INTERFEROMETER , Lab ID -E36, SR. NO. 54UA64 Make - RENISHAW , Calibrated at NPL valid upto 5th Aug 2027 |
| TRACEABILITY | 1.Traceable to National Standards through NABL Lab No.CC-0092 vide Cer.No. -P/98/2411 calibrated on. 23rd Nov. 2024. 2. Traceable to National Standards through National Physical Laboratory vide Cer. No. 24070548/01 SI/C-041 calibrated on 05th Aug. 2024. |
| ENVIRONMENTAL CONDITION | 20.4° C. |
| UNCERTAINTY OF MEASUREMENT | 0.26 + 0.59(L) µm, where L is in meter |

The uncertainty stated is the expanded uncertainty of measurement obtained by multiplying the standard uncertainty by the coverage factor k=2 corresponds to confidence level of 95.45%.
NOTE : 1.Calibration Results are enclosed on Page No. 2 onwards.

Note : The certificate is issued subject to conditions stated overleaf. CONTD. PAGE 2

Calibrated By
Ashish Patil
Manager Calibration Lab

Approved By
Yogesh Rothod
Asst. Manager Calibration Lab

# Vertical Profile Projector

## Technical Specifications

| | PP 300TE | PP 400TE | PP 600VE |
|---|---|---|---|
| Screen | Glass screen Ø300 mm with cross-lines at 90° | Glass screen Ø400 mm with cross-lines at 90° | Glass screen Ø600 mm with cross-lines at 90° |
| Magnification | 10x telecentric lens (std.)<br>5x, 20x, 50x, 100x (opt.) | 10x telecentric lens (std.)<br>5x, 20x, 50x, 100x (opt.) | 10x telecentric lens (std.)<br>5x, 20x, 50x, 100x (opt.) |
| Work Stage | | | |
| Size of top plate | 350 mm × 210 mm | 380 mm × 280 mm | 350 mm × 210 mm |
| Measuring traverse (X & Y Axis) | 200 mm × 100 mm | 250 mm × 150 mm | 250 mm × 150 mm |
| Working area | 280 mm × 180 mm | 380 mm × 280 mm | 380 mm × 280 mm |
| Maximum diameter | Ø130 mm | Ø170 mm | Ø210 mm |
| Load capacity | 25 kg | 25 kg | 25 kg |
| Projection Accuracy | | | |
| Contour | ±0.05% | ±0.05% | ±0.05% |
| Surface | ±0.05% | ±0.05% | ±0.05% |
| Measurement System | | | |
| Linear | Linear encoders LC 1 micron | | |
| Angular | Rotary encoder LC 1 sec | | |
| Digital Read Out | 3 types available | | |
| OP-250 | Simple 3-axis system | | |
| OP-500 | Advanced 3-axis system with geometric functions | | |
| OP-1000 | Computerized measuring system with metrology software | | |
| Illumination System | | | |
| Profile | 24V, 150W halogen lamps | | |
| Surface | Twin fibre optic illumination with 24V, 150W halogen lamp | | |
| Power Supply | 220V, 50Hz | | |
| Net Weight | 90 kg | 120 kg | 160 kg |
| Overall Dimensions(LxWxH) | 800 × 450 × 1100 mm | 870 × 550 × 1270 mm | 1270 × 850 × 1950 mm |

# Horizontal Profile Projector

## Technical Specifications



| | PP 400H | PP 600H |
|---|---|---|
| Screen | Glass screen Ø400 mm with cross-lines at 90° | Glass screen Ø600 mm with cross-lines at 90° |
| Magnification | 10x telecentric lens (std.)<br>5x, 20x, 50x, 100x (opt.) | 10x telecentric lens (std.)<br>5x, 20x, 50x, 100x (opt.) |
| Work Stage | | |
| Size of top plate | 515 mm × 125 mm | 650 mm × 230 mm |
| Measuring traverse (X & Y Axis) | 250 mm × 150 mm | 300 mm × 600 mm |
| Working area | 515 mm × 125 mm | 650 mm × 230 mm |
| Maximum diameter | Ø170 mm | Ø210 mm |
| Load capacity | 25 kg | 25 kg |
| Projection Accuracy | | |
| Contour | ±0.05% | ±0.05% |
| Surface | ±0.05% | ±0.05% |
| Measurement System | | |
| Linear | Linear encoders LC 1 micron | |
| Angular | Rotary encoder LC 1 sec | |
| Digital Read Out | 3 types available | |
| OP-250 | Simple 3-axis system | |
| OP-500 | Advanced 3-axis system with geometric functions | |
| OP-1000 | Computerized measuring system with metrology software | |
| Illumination System | | |
| Profile | 24V, 150W halogen lamps | |
| Surface | Twin condenser illumination with 24V, 150W halogen lamp | |
| Power Supply | 220V, 50Hz | |
| Net Weight | 175 kg | 250 kg |
| Overall Dimensions(LxWxH) | 1450 × 550 × 3100 mm | 1800 × 900 × 1900 mm |

# Digital Measuring Systems

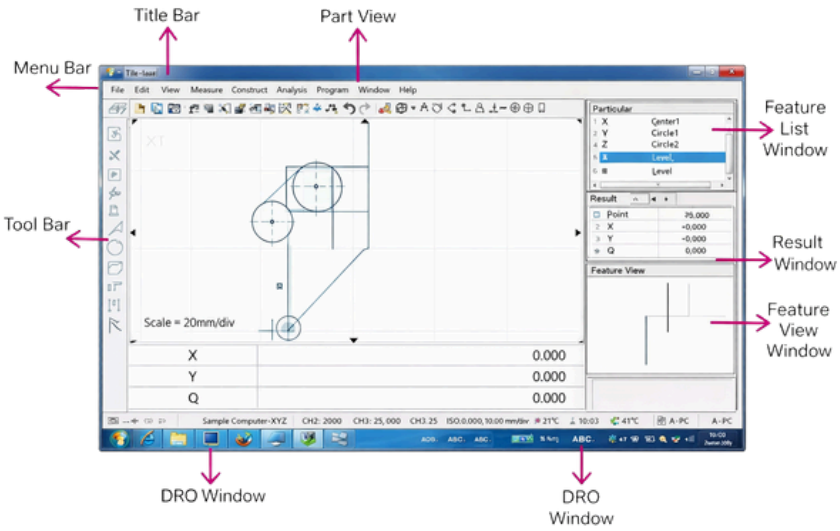

## Model OP 250 – Simple 3-Axis DRO

- One-touch measurement for point, line, arc, circle, distance, angle, and other geometric elements
- Large backlit LCD display for clear and easy readability
- Stores up to 100 graphical elements in non-volatile memory
- Touch-sensing keypad for convenient operation and longer service life
- USB communication interface for data backup, result transfer, and printing via PC
- Measurement results displayed in inch or millimeter

## Model OP 500 – Advanced 3-Axis DRO with Geometric Functions (with Optical Edge Detector)

- Includes all features of the OP 250 DRO system
- Measurement display available in inch/mm and polar or Cartesian coordinates
- Graphical display of measured features for better visualization
- Ability to construct geometric features from stored entities
- Part alignment and skew correction functions
- Measurement results can be printed directly by connecting a printer
- Optical Edge Detector improves measurement accuracy and reduces operator subjectivity

## Model OP 1000 – Computerized Measuring System with Metrology Software




- Includes all features of DRO Model OP500
- Measure points, lines, circles, rounded slots, and rectangular slots
- Graphical display of measured entities for clear visualization
- Direct import of nominal values from AutoCAD (DXF) files
- Export measured drawings to AutoCAD
- Supports reverse engineering applications
- Flexible report generation
- Measurement data storage in XML format
- Ability to construct and measure indirectly measured entities from stored measurements
- Automatic calculation of form tolerances, including roundness, straightness, concentricity, angularity, parallelism, squareness, and positional tolerance
- Latest configuration with 15” LCD monitor mounted directly on the projector

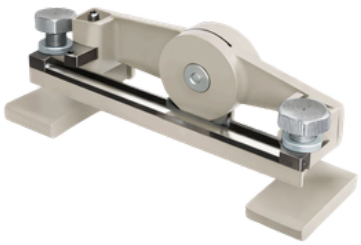
# Optional Accessories

A Variety of optional Accessories for Vertical and Horizontal profile projectors.

## Rotary Table

The Rotary Table is used for rotating the component relative to the lens axis, allowing precise angular measurement and alignment.

This fixture is available with a 125 mm diameter glass window and can be supplied with 360° graduation and a 5-minute vernier for accurate angular positioning.



## Tilting Support

The Tilting Support is designed for holding small lead screws, gears, and similar components at the correct helix angle in vertical light path projectors.

**Specifications**

Between Centers: 200 mm
Center Height: 70 mm
Maximum Tilt Angle: 15°

## Small and Large Centers

These centers are used for holding long or cylindrical components between centers on horizontal light path projectors, ensuring stable positioning during measurement.

**Specifications**

Center Height (Small Centers): 125 mm
Center Height (Large Centers): 200 mm

## Vertical Glass Support Plate

The Vertical Glass Support Plate is a flat glass plate used for holding small, thin, and flat components vertically in the light path of horizontal profile projectors for accurate profile measurement.

**Specifications**

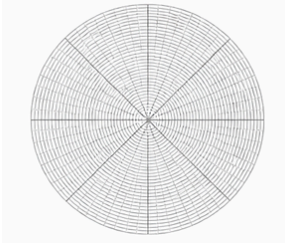
Glass Diameter: 105 mm
Center Height: 125 mm

## Set of Plain V-Blocks with Clamps

A set of precision V-blocks with clamps used for securely holding cylindrical or irregular components during inspection.

**Available Sizes**

40 mm × 40 mm
20 mm × 20 mm



## Overlay Charts

A set of overlay charts used for quick comparison and measurement of standard geometries.


Optomech Engineers Pvt. Ltd. was founded in Hyderabad, India in the year 1981.

Optomech has over 37 years of experience of manufacturing, servicing and marketing of products involving vision technology for quality inspection.

We are closely orientated towards the needs of the market. We are one of the leading providers of vision technologies for quality inspection. Renowned companies place their trust in the solutions and services provided by Optomech.

For us at Optomech, 'Professional After-Sales Service' is not just a simple catch phrase; it is our company philosophy. We accompany you all the way from the initial consultation up to final installation and training – and beyond.

You will benefit from our many years of experience and will be able to deal with the challenges encountered when implementing the new technology.

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**Video Measuring Machine**

**Bottle Inspection System**

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