

# FP Series

## Contact Profilers

Toho custom profilers offer comprehensive measurement capabilities for mass production and research facilities that demand accuracy, performance and value.

Incorporating KLA-Tencor's proprietary low-force measurement head, Toho Profilers provide low stylus force and achieve highly accurate micron to nanometer range measurements to analyze surface flatness, surface roughness, waviness, peak to valley, curvature, texture, stress, and feature dimensions specifically for large square substrate larger than 300mm.



## Standard Features

### Substrate Accommodation

Toho offers a full range of FP-Series Profilers built to accommodate substrates of all sizes. FP-10 models are ideal for smaller panels.

### KLA-Tencor Micro Head

Toho Profilers feature patented KLA-Tencor measurement head core technology in order to provide best in class profilometry.

### Stylus Profiling

The standard L-Stylus (2 $\mu$ m, 60°) allows for precision scanning with force ranges from 0.5mg to 15mg providing up to 90mm continuous scan length at 25mm per second.

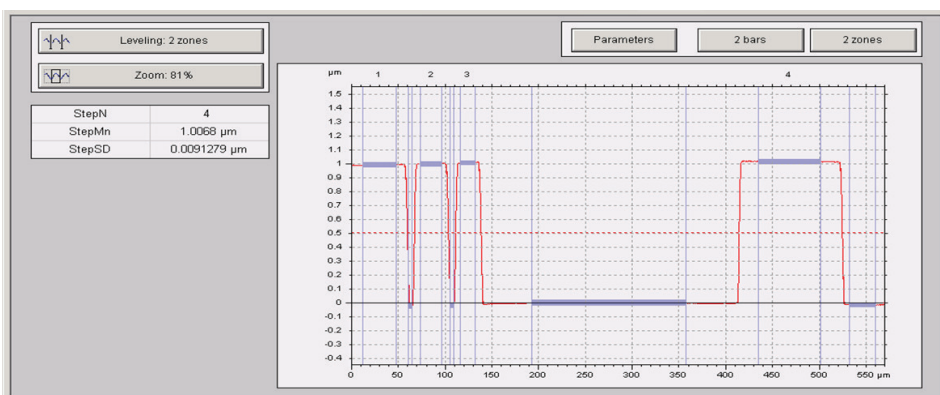
### Repeatability

Excellent and reliable measurement reproduction featuring scan repeatability of 10 Å at center stage.

## Applications

Toho Profilers are designed to provide accurate profile measurements within a vast array of applications:

- Thin film heights
- Thick film heights
- Photo resist / soft films
- Surface Roughness Characterization
- Surface Curvature and form
- 2D Stress on thin films
- Peak to Valley Dimension analysis
- 3D imaging
- Flatness
- Defect Analysis



Highly repeatable step height measurements at 10Å

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### FP-10

**A-Type: Head Stationary / Stage Moves**  
(up to 400mm x 500mm substrates)

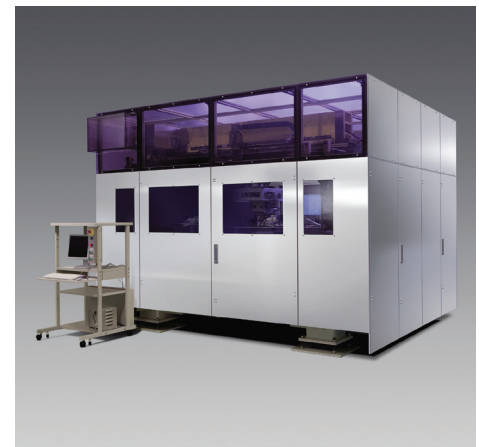
For smaller scale applications where footprint and budgets are limited, the Toho FP-10 is the right choice for surface analysis. The original KLA-Tencor design with a moveable stage is utilized. Two lead screws (X and Y) are used for location of a measurement point while the patented Micro Head & stylus is fixed over the stage. Accommodating various materials, shapes and rigidities, the FP-10 offers excellent versatility.



### FP-20

**X-Type: Head Moves / Stage is Stationary**  
(any substrate larger than 400mm x 500mm)

With larger glass panels, noise can be generated with sample handling. The X-type FP series resolves this issue with a moveable Micro Head. The granite measurement stage features an X axis and a gantry suspends the scanner with the Micro Head moving in the Y axis. This structure allows for faster measurements with more reliable data at all points on a large area. FP-20's are used at all major display fab plants worldwide.



## Specifications

### Performance

Scan Repeatability	10Å for A type / 15Å for X type
X and Y Repeatability	± 2 µm
Scan Length	30 mm ~ 90mm with stress option
Scan Speed	1 µm / sec ~ 25mm / sec
Sampling Rate	50 / 100 / 200 / sec
Throat Height	15 mm
Vertical Range	0 – 130 µm
L – Stylus	2 µm / 60 degrees
Stylus Force	0.5 mg – 15 mg
Pattern Recognition	Manual / Auto optional
Noise Isolator	Equipped

### Configuration

Sample Size (mm) A type	up to 400mm x 500mm
Sample Size (mm) X type	any size larger than 400mm x 500mm

## Options

- CIM Control System
- Offline software
- Auto Pattern Recognition
- 3D Imaging
- Stress Measurement
- Resistivity 4-Point Probe
- UPS Unit
- VLSI Standard
- Spare L-Stylus

**KLA Tencor**

The Toho FP Series incorporates original KLA-Tencor Measurement Heads and design.