

# STYLUS PROFILOMETER

High-precision capacitance sensor for Nanometric roughness

## OVERVIEW

PFM-6020 and PFM-6040 are 1D profilometers for measuring surface roughness, step height and layer thickness. The instrument provides 100  $\mu\text{m}$ - 2mm measuring range in the z-direction with a best precision of 50 nm and a vertical resolution of 1 nm. PFM-6040 includes some features to enhance the user experience such as motorized sample stage, motorized slope correction to improve measurement accuracy and stylus low force option. The software controls the measurement process and contains graph leveling, analysis functions to analyze step height, roughness, slope and distance.



## FEATURES

- High precision capacitive sensor
- High vertical resolution
- Long scan profiler up to 30 mm
- Low force stylus option

## SPECIFICATIONS

PFM Technical Specifications			
Model		PFM-6020	PFM-6040
Measurement technique	Contact stylus profilometry	√	√
Profilometry measurement	1-Dimensional surface profile measurement	√	√
Tip view camera	640*480 pixel, 50-500X Magnification, Focusable digital camera	√	√
Stylus sensor	Capacitive displacement sensor	√	√
Stylus approach	Automated stylus approach system	√	√
Sensor calibration	Automated calibration system	√	√
Stylus motion	x and z axis motorized motion	√	√
Low force option	Stylus-on-sample force adjustment system	-	√
Sample stage	z axis motorized stage	-	√
Max. wafer size	120 mm	√	√
Max. scan course	3 cm	√	√
Data points per scan	Max. 10000	√	√
X-Scan steps	1.3 $\mu\text{m}$	√	√
Step height accuracy *	50 nm	√	√
Software slope correction		√	√
Hardware slope correction system	Motorized slope correction	-	√
Vertical range	$\pm 200 \mu\text{m}$ ( $\pm 100 \mu\text{m}$ - $\pm 1\text{mm}$ optional)	√	√
Max. sample height	45 mm	√	√

\* Best step height measuring accuracy: 50-200 nm, based on sensor measuring range.