

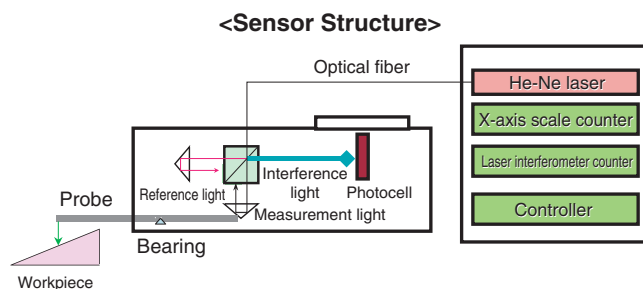
World Top-class High Accuracy, High Speed and High Resolution
 – Thoroughly pursuing the limits of surface characteristics analysis –

SURFCOM 5000DX 5000SD



● Highly Stable Optical Path Laser Interferometer (patented)

- This measuring machine adopts an optical fiber-based laser interferometer, one of Tokyo Seimitsu's constituent technologies, and incorporates a newly developed highly stable optical path laser interferometer having a resolution of 0.3nm.
- This system features a dynamic range to resolution ratio of 43,333,000:1, which means that contour shapes over a wide range and minute surface shapes hidden in that shape can be evaluate by a single trace.



Automatic Measurement Over a Wide Range

- Wide measuring range of 200mm (horizontal direction) and 13mm (vertical direction)
- Motorized tilting unit capable of tilting to 45° also available (option)
- Teaching playback function allows processes from measurement through to printing to be automated.



TIMS Upgraded Version

- TIMS (Tokyo Seimitsu Integrated Measuring System) is continually evolving. Newly added functions make the system simpler and easier-to-use, making it popular with both beginners and advanced users.

● World Top-class Resolution of 0.3nm

A highly stable optical path He-Ne laser interferometer is used in the sensor to achieve high resolution over a wide range.

● Linear Motor Drive

Linear motor drive ensures high accuracy and high-speed movement. Also, low vibration ensures more stable measurement at high magnifications.

● Texture and Contour Analyzed in a Single Measurement

Measurement efficiency improved and high accuracy maintained at the same time.

Advanced TIMS AI Functions

Various automatic recognition techniques have resulted in a simpler and easier-to-use system.

- **Automatic Calculation Range Expansion function**

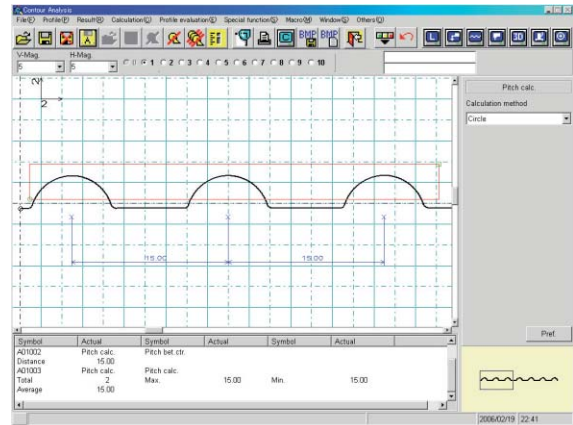
Part of a geometric element (slightly smaller than the regular range) can be set as the calculation range. The optimum shape is then automatically recognized to expand the calculation range and perform calculation. This allows even more data to be used in calculations, which helps improve accuracy.

- **Repeat function**

This function memorizes the previous calculation result so that it can be re-used for the next calculation range just by clicking a button. This is ideal for calculating continuous shapes.

- **Automatic Calculation function**

Automatic calculation can be processed merely by setting the calculation range of geometric elements. Also, the automatic calculation range expansion function can be jointly used with the repeat function for supporting the evaluation of continuous shapes by a simpler operation.



Specifications

Model		SURFCOM 5000DX/SD			
Measuring Range	Z-axis (vertical)	13mm/50mm arm, 26mm/100mm arm			
	X-axis (horizontal)	200mm			
Accuracy	Z-axis indication accuracy (vertical)	$\pm 0.2 + \text{HfI} / 1000 \mu\text{m}$ ($\pm 0.206 \mu\text{m} / \text{H} \pm 6 \text{mm}$)			
	Resolution	0.31nm/50mm arm			
	X-axis indication accuracy (horizontal)	$\pm 0.2 + \text{L} / 1000 \mu\text{m}$ ($\pm 0.4 \mu\text{m} / \text{L} 200 \text{mm}$)			
	Resolution	0.54nm			
Straightness accuracy		0.05+3L/10000 μm (0.11 $\mu\text{m} / \text{L} 200 \text{mm}$)			
Sensing method	Z-axis (vertical)	Highly stable optical path type laser interferometer			
	X-axis (horizontal)	Optical diffraction scale			
Processing functions	Surface texture evaluation	Standards	Complies with JIS2001, JIS1994, JIS1982, ISO1997, ISO1984, DIN1990, ASME1995, CNOMO		
		Parameters	Ra, Rq, Ry, Rp, Rv, Rc, Rz, Rmax, Rt, Rz.J, R3z, Sm, S, R/a, R/q, R_a, R_q, TILT A, Ir, Pc, Rsk, Rku, Rk, Rpk, Rvk, Mr1, Mr2, VO, K, tp, Rmr, Rmr2, R_c, AVH, Hmax, Hmin, AREA, NCRX, R, Rx, AR, NR, CPM, SR, SAR		
		Evaluation curves	Section profile curve, texture curve, filtered waviness curve, filtered center line waviness curve, rolling circle waviness curve, rolling circle center line waviness curve, DIN4776 special curve, texture motif curve, waviness motif curve, envelope waviness curve		
		Surface characteristics graphs	Load curve graph, power graph, amplitude distribution graph		
		Tilt correction	Linear correction, round surface correction, first half correction, latter half correction, both end correction, spline curve correction (linear, round surface and both end correction possible in arbitrary range)		
		Type of filter	Gaussian phase compensation filter, standard filter (2RC), phase compensation filter (2RC)		
		Cutoff values	0.008, 0.025, 0.08, 0.25, 0.8, 2.5, 8, 25, 50mm (9 stages), selectable (range: 0.001 to 50mm)		
		Data points	32,000 max. (no λ s point filter); 300,000 max. (with λ point filter)		
		Magnification (vertical)	50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1000K, 2000K		
		Magnification (horizontal)	0.1, 1, 2, 5, 10, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K		
		Contour evaluation	Calculations	Point, line, circle, partial circle, ellipse, max. point/min. point, distance, coordinate difference, polar coordinate difference, orthogonal/polar coordinate difference display, intersecting elements (point-line, line-line, circle-line, circle-circle, line-ellipse), symmetric elements (point-point, point-circle, point-ellipse, line-line, circle-circle, circle-ellipse, ellipse-ellipse), surface calculation, over-pin calculation, dimension line display function, calculation result/nominal value collation, mirror reversal, profile synthesis function, macro function, automatic element discrimination, calculation point repeat function, workpiece trace function, peak and valley function, auto operation log/playback function, profile nominal value collation, best fit, design value generation, IGES/DXF conversion	
			Standard settings	Zero point setting, X-axis setting, parallel movement, rotary movement	
			Measurement pitch	0.0005 to 1mm	
	Data points		150,000 max.		
Drive Speed		Magnification (vertical)	0.01 to 10,000,000 (arbitrary or automatic)		
		Magnification (horizontal)	0.01 to 10,000,000 (arbitrary or automatic)		
		Column up/down speed (Z-axis)	to 200mm/s		
Drive unit tilt		Drive unit measuring speed (X-axis)	0.03 to 3mm/s (during texture measurement), 0.02 to 20mm/s (during contour measurement)		
		Drive unit movement speed (X-axis)	0.02 to 60mm/s		
			$\pm 45^\circ$ (option)		
Sensor unit		Stylus	Replaceable		
		Measuring force	0.75mN		
		Stylus radius	2 μm R standard accessory (50mm arm)		
		Stylus material	Diamond		
		Functions	w/ retract function		
Other		Power Requirements	Single-phase 100 VAC $\pm 10\%$, 50/60 Hz		
		Power consumption	505VA		
		Installation dimensions	2000 (W) \times 1000 (D) \times 2000 (H)		
		Weight	500kg		

★ Dimensions and weight are for the DX Type.