Surface Texture and Contour Integrated Measuring Instruments

Highest Accuracy, Highest Speed and Highest Resolution in the World
– Thoroughly pursuing the limits of surface characteristics analysis –

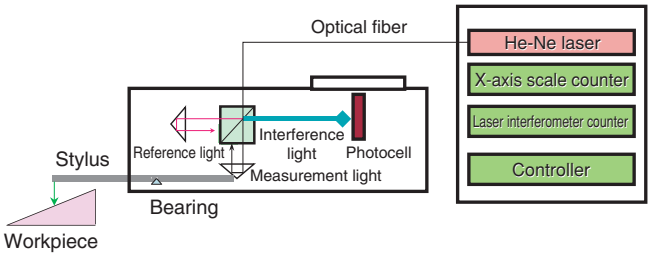
SURFCOM 5000DX
5000SD

CE

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 0.3 nm.
- 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 hidden surface shapes can be evaluated by a single trace.

<Sensor Structure>



Automatic Measurement Over a Wide Range

- Wide measuring range of 200 mm (horizontal direction) and 13 mm (vertical direction)
- Motorized tilting unit capable of tilting to 45˚ also available. *1
- Teaching/playback function allows processes from measurement through printing to be automated.

*1 Drive unit tilting device is included as standard on the SURFCOM 5000DX/SD-T Type.

●World Highest 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.

●Roughness and Contour Analyzed in a Single Measurement

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

●Large size maintains accuracy

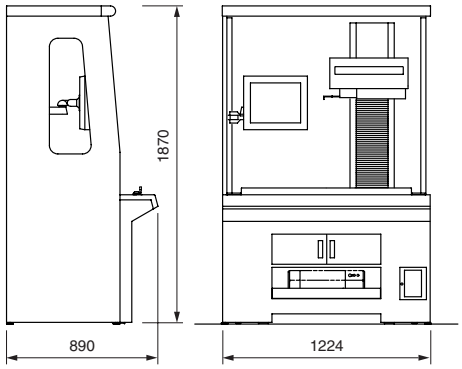
●CNC table can be added for full automatic operation

●All the function of the S3000A

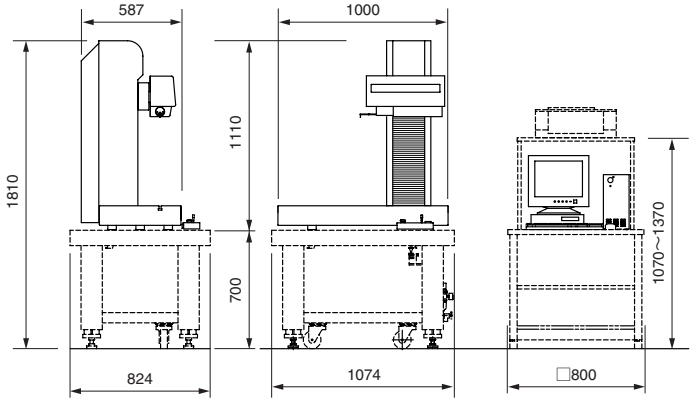
Workpiece angle is detected after workpiece tracing, and the drive unit's auto leveling feature returns the workpiece and drive unit to level.

External View

SURFCOM 5000DX



SURFCOM 5000SD



DX Type can be configured with a front windproof cover and an external monitor.

* Anti-vibration table, system rack and printer are options for the SD Type.

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)	±0.2+IHI/1000μm (±0.206μm/H±6mm)　H: Measuring height
	Resolution	0.31nm/50mm arm
	X-axis indication accuracy (horizontal)	±0.2+L/1000μm (±0.4μm：L200mm)　L: Measuring length
	Resolution	0.54nm
Straightness accuracy		0.05+3L/10000μm (0.11μm：L200mm)　L: Measuring length
Sensing method	Z-axis (vertical)	Highly stable optical path type laser interferometer
	X-axis (horizontal)	Optical diffraction scale
Surface texture processing functions	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, RΔa, RΔq, Rλa, Rλq, TILT A, Ir, Pc, Rsk, Rku, Rk, Rpk, Rvk, Mr1, Mr2, VO, K, tp, Rmr, Rmr2, Rσc, 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	Bearing area curve, 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, 50 mm (9 stages), selectable (range: 0.001 to 50 mm)
	Data points	32,000 max. (no λs point filter); 300,000 max. (with λs 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 processing functions	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.
	Magnification (vertical)	0.01 to 10,000,000 (arbitrary or automatic)
	Magnification (horizontal)	0.01 to 10,000,000 (arbitrary or automatic)
Drive speed	Column up/down speed (Z-axis)	To 200mm/s
	Drive unit measuring speed (X-axis)	0.03 to 3mm/s (during texture measurement), 0.02 to 20 mm/s (during contour measurement)
	Drive unit movement speed (X-axis)	0.02 to 60mm/s
Drive unit tilt		±45° (option)
Sensor unit	Stylus	Replaceable
	Measuring Force	0.75mN
	Stylus radius	2μmR standard accessory (50mm arm)
	Stylus material	Diamond
	Functions	Retract function
Dimensions and weight	Power Requirements	Single-phase AC100V ±10%, 50/60 Hz
	Power consumption	505VA
	Installation dimensions	2000 (W) ×1000 (D) ×2000 (H)
	Weight	500kg

★ Dimensions and weight are for the DX Type.