Surface Texture・Contour Measuring Instruments

Integrated Surface Texture & Contour Measuring Instrument

SURFCOM 3000A

SURFCOM 3000A-DX

SURFCOM 3000A-STD

* Printer is option.

World's Highest Performance

The SURFCOM 3000A is an integrated surface texture and contour measuring instrument that sets a new paradigm for precision and performance. Resolution is 0.005 μm and the ratio of dynamic range to revolution is 2,400,000 : 1.

Analysis of Surface Texture/Profile in One Measurement

The 3000A is provided with ACCRETECH's TIMS integrated measuring system featuring high flexibility and expandability. This enables extremely efficient analysis of surface texture and contour profile in only one trace operation.

Easy to Operate

A variety of measuring assist functions are incorporated, including an AI function, trace display function, repeat function and auto calculation range expansion function. This makes the unit easy to operate even for beginners.

Highly Stable Double-Beam Path-Type Laser Interference Sensor (patented)

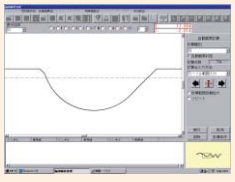
Our optical-fiber based laser interference measuring system has been applied to develop a highly stable double-beam path-type laser interference sensor with 0.005 μm resolution and a ratio of dynamic range to revolution of 2,400,000 : 1. This revolutionary system enables one-trace evaluation of contour profile and the minute hidden surface profile.

Wide Range・Automatic Measurement

The 3000A has a wide range of 200 mm in the horizontal direction and 12 mm in the vertical direction. It has a motor-driven tilting unit that can tilt 45°, and teaching/playback function that enables automation of everything from measurement to printout.

AI Function

Line, circle or other element can be automatically determined by simply specifying the profile analysis range. This is a representation of our commitment to making measurements as easy as possible.

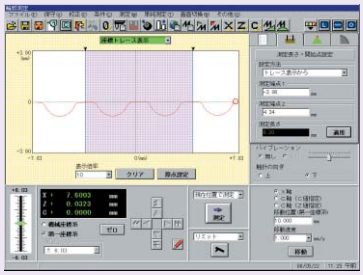


Measurement

Simply Set Measuring Length

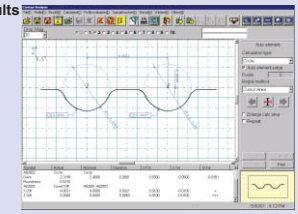
The trace input method where the measuring range is specified after a manual trace is effective for precise micro-profile positioning. This also reflects our commitment to making measurements as easy as possible. The conventional method of setting the measuring distance from the starting point can also be used.

Trace display



Analysis

Measured results



Dimension Line Display

The diameter, angle, pitch and other actual measured values can be entered onto the dimension lines on the measured result diagram. In addition, geometric deviation of roundness, straightness and other values, and surface texture can also be displayed.

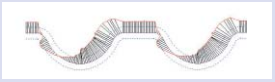
Calculation Result/Design Value Collation Function

This function enables one-glance OK/NG judgment for tolerance collation. The operator does not have to make a pass/fail judgment.

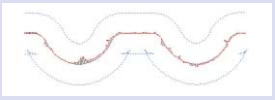
External Output Function

Measured results can be output as a CSV file. This CSV file can be read by a standard spreadsheet program.

Before best fit



After best fit



Profile Evaluation

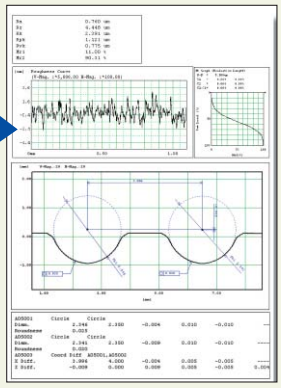
Best Fit Function

In order to minimize the error between the differences in the standard settings for the design values and measured values to be compared, the coordinate system with the minimum error between the design/measured values is obtained, and error collation is performed for the profile data at each point.

Printing

Printout

The results of surface texture and contour profile analysis are output on a single inspection report.



Specifications

Model		SURFCOM 3000A	
		Surface Texture Evaluation	Contour Evaluation
Measuring range	Z axis (vertical)	12mm for 50mm arm, 24mm for 100mm arm	
	X axis (horizontal)	200 mm	
Accuracy	Z axis indication accuracy (vertical)	± (0.3 + 2H / 100) μm (H: Measuring height [mm])	
	Resolution	5nm for 50mm arm, 10nm for 100mm arm	
	X axis indication accuracy (horizontal)	± (0.5 + L / 200) μm (L: Measuring length [mm])	
	Sampling interval	0.05 – 20 μm	
Straightness accuracy		(0.05 + 1.5L / 1000) μm	
Sensing method	Z axis (vertical)	Highly stable double-beam path-type laser interference sensor	
	X axis (horizontal)	Beam diffraction scale	
Processing functions	Parameters / calculation processing	Complies with JIS-2001, JIS-1994, JIS-1982, ISO-1997, ISO-1984, DIN-1990, ASME-1995 & CNOMO 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, RδC, AVH, Hmax, Hmin, AREA, NCRX, R, Rx, AR, NR, CPM, SR, SAR	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/design 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 design value collation, best fit, design value generation, IGES/DXF conversion
	Evaluation curves	Section profile curve, roughness curve, filtered waviness curve, filtered center line waviness curve, rolling circle waviness curve, rolling circle center line waviness curve, DIN4776 special curve, roughness motif curve, waviness motif curve, envelope waviness curve	–
	Surface characteristic graph	Load curve, power graph, amplitude distribution (ADF) graph	–
	Tilt correction / standard setting	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 at arbitrary range)	Zero point setting, X axis setting, parallel movement, rotary movement
Speed	Column up/down (Z axis)	3.10 mm/s	
	Measuring (X axis)	0.02 – 1 mm/s (Movement speed: 0.02 – 20 mm/s)	
Drive unit	Tilting device	±45° motorized/manual	
Sensor unit	Stylus	Replaceable	
	Measuring force	0.7 mN/ 16 mN or less	
	Stylus radius	2 μm R60° cone for 50mm arm, 500 μm R for 100mm arm	
	Stylus material	Diamond / ruby	
Power source		Single phase AC 100 V ±10%, 50/60 Hz	
Power consumption		450 VA	
Installation dimensions		2100 (W) × 900 (D) × 1650 (H) mm	
Weight		350 kg	