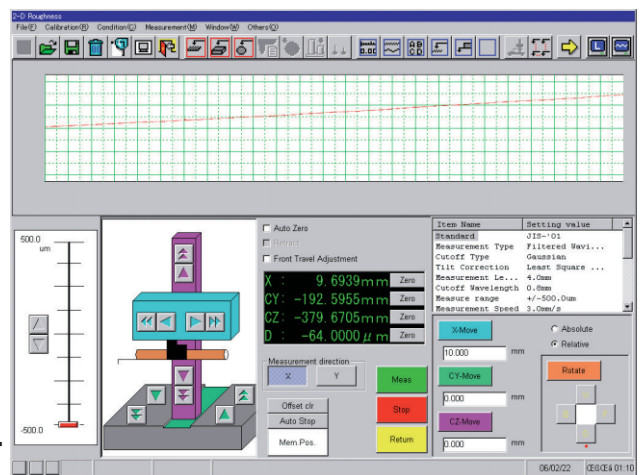


Automation Solution for On-site Surface Texture Measurement Management  
 – Proposing high-speed, high-accuracy measurement for production sites –

## SURFCOM C5



- This newly developed CNC surface texture measuring instrument incorporates advanced 5-axis control for flexibly supporting measurement of a diverse range of work-pieces.
- Equipped with pickup rotation mechanism for enabling texture measurement of wall surfaces, etc. without the need for setup changes
- The newly developed drive unit is equipped with both X- and Y-axes to improve measurement efficiency. (Patent pending)
- Measurement of even large, heavy work-pieces
- Drivable at even a maximum speed of 100mm/sec



TMS 5-axis Control Measurement Window

The SURFCOM C5 CNC texture measuring machine performs 5-axis control on the X-axis drive unit (left/right), Z-axis (column up/down), CY-axes (column forward/backward), MY-axes (sensor horizontal trace), and  $\theta$ -axis (sensor rotation). This leading-edge measuring machine responds to the demand for on-site texture measurement.

## ■ SURFCOM 5, a Proposal for Engine Production Processes

### Current state of texture measurement in engine production processes

Target  
workpiece

Cylinder block  
Cylinder head  
Crankshaft  
Cam shaft  
Connector rod, etc.



Portable texture measuring machines and measurement of jigs are the subject of a number of issues:

- (1) Not universal
- (2) Difficult to record judgment results
- (3) Subject to human error

### SURFCOM C5 solves these problems in a single move.

#### [Features of SURFCOM C5]

- Measurement efficiency improved by multi-axis control
- X-axis drive unit (200 mm) and Y-axis drive unit (30 mm) integrated into a single structure
- (Patent pending)
- Integrated sensor rotating mechanism ensures measurement in all orientations.
- Low-vibration linear motor drive (X-axis)

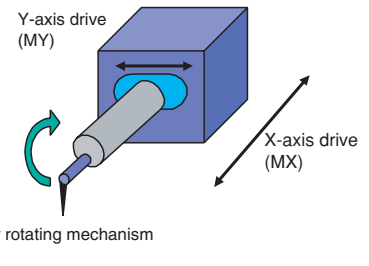


Figure explaining measurement operating sections of the X-axis drive unit

### Specifications

Model		SURFCOM C5
Measuring Range	Sensor: Z-axis (vertical)	1000 μm
	Drive unit: X-axis (horizontal)	200mm
Operating range	Column up/down: (Z-axis)	500mm (resolution: 0.1 μm)
	Drive unit: X-axis	200mm (resolution: 0.1 μm)
	Column cross-feed: Y-axis	800mm (resolution: 0.1 μm)
	Pickup drive unit: Y-axis	30mm (resolution: 0.08 μm)
	Pickup: Angle of rotation	0°, 90°, 180°, 270°
Drive unit: Straightness accuracy		(X-axis) 0.5 μm/200mm, (Y-axis) 0.5 μm/30mm
Sensing method		Sensor: Z-axis (vertical direction): differential transducer, Drive unit: X-axis (horizontal direction): 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, R/A, R/Aq, R/λa, R/λq, 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	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 (0.001 onwards)
	Data points	32,000 max. (no λ s point filter); 300,000 max. (with λ s point filter)
	Magnification (vertical)	50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K
Magnification (horizontal)	0.1, 1, 2, 5, 10, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K	
Speed	Column up/down speed (Z-axis)	100mm/s max.
	Drive unit measuring speed (X-axis)	0.03 to 3mm/s (during texture measurement), 0.03 to 20mm/s (during waviness measurement)
	Drive unit movement speed (X-axis)	100mm/s max.
	Column movement speed (Y-axis)	100mm/s max.
Sensor unit	Stylus	Replaceable
	Measuring force	0.75mN
	Stylus radius	2 μmR, equipped as standard
	Stylus material	Diamond
Other	Power requirements	Single-phase 100 to 230 VAC
	Power consumption	1000VA
	Machine installation dimensions	1410 (W) x 1500 (D) x 1685 (H)mm [controller: 600 (W) x 850 (D) x 1200 (H)mm]
Weight	1950kg	