Automated Solution for Production Floor
Surface Texture Measurement Management

SURFCOM C5 allows customization of the workpiece feed unit and jig production to suit particular needs. It is suited to workpieces that require approach from many directions such as cylinder heads and blocks or workpieces that need a revolving shaft such as crank and cam shafts.

Current status of roughness measurement in the engine production process

<table>
<thead>
<tr>
<th>Target workpiece</th>
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<tbody>
<tr>
<td>Cylinder block</td>
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<td>Cam shaft</td>
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<tr>
<td>Cylinder head</td>
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<tr>
<td>Connector rod, etc.</td>
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<tr>
<td>Crankshaft</td>
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PORTABLE TEXTURE MEASURING INSTRUMENTS AND MEASUREMENT OF JIGS ARE SUBJECT TO A NUMBER OF PROBLEMS

1. Not universal
2. Difficult to record judgment results
3. Subject to human error

SURFCOM C5 solves all of these problems at once

[Features of SURFCOM C5]

- Measurement efficiency improved by multi-axis control.
- Integrated sensor rotating mechanism ensures measurement in all orientations.
- X-axis tracing driver (200 mm) and Y-axis tracing driver (50 mm) integrated into a single structure (Patented).
- Low-vibration linear motor drive (X-axis).

Illustration explaining measurement operating sections of the X-axis tracing driver
### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>SURFCOM C5</th>
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</table>
| Measuring range | Detector: Z-axis (vertical) 1000 μm  
Tracing driver: X-axis (horizontal) 200 mm |
| Operation range | Column up/down: Z-axis 500 mm (resolution: 0.1 μm)  
Tracing driver: X-axis 200 mm (resolution: 0.1 μm)  
Column cross-feed: Y-axis 800 mm (resolution: 0.1 μm)  
Pickup tracing driver: Y-axis 50 mm (resolution: 0.1 μm)  
Pickup: Rotation angle 0°, 90°, 180°, 270°  
Measuring pressure of 0.75 mN is maintained at all orientations |
| Sensing method | Detector: Z-axis (vertical direction): Differential inductance  
Tracing driver: X-axis (horizontal direction): Optical diffraction scale |
Parameter: Ra, Rq, Ry, Rz, Rmax, R1, R2, R3z, Sm, S, S1a, Rsq, R sq, R1a, R1sq, TILT A, Ir, Pc, Risk, Rku, Rk, Rk, Rvk, Mr1, Mr2, V0, K, k, tp, Rmr, Rmr2, Roc, AVH, Hmax, Hmin, AREA, NCRX, R, Rx, AR, NR, CPR, SR, SAR  
Evaluation curve: Section profile curve, roughness curve, filtered waviness curve, rolling circle waviness curve, envelope waviness curve, rolling circle center line waviness curve |
| Surface characteristics graph | Bearing area curve, power spectrum curve, amplitude distribution graph |
| Till 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 2RC filter, phase compensation 2RC filter |
| Cutoff value | 0.008, 0.025, 0.08, 0.25, 0.8, 2.5, 8, 25, 50 mm (9 stages), selectable (from 0.001) |
| Data point | 32000 max. (without λs filter); 300000 max. (with λs filter) |
| Magnification (vertical) | 50, 100, 200, 500, 1 k, 2 k, 5 k, 10 k, 20 k, 50 k, 100 k, 200 k, 500 k |
| Magnification (horizontal) | 0.1, 1, 2, 5, 10, 50, 100, 200, 500, 1 k, 2 k, 5 k, 10 k, 20 k |
| Speed | Column up/down speed (Z-axis) 100 mm/s max.  
Tracing driver measuring speed (X-axis) 0.03 mm/s to 3 mm/s (during roughness measurement)  
Tracing driver measuring speed (Y-axis) 0.3 mm/s to 3.0 mm/s  
Tracing driver moving speed (X/Y-axis) 100 mm/s max.  
Column moving speed (X/Y-axis) 100 mm/s max. |
| Detector | Stylus: Replaceable  
Measuring force*: 0.75 mN (with standard pickup)  
Stylus radius*: Rtip 2 μm (standard accessory)  
Stylus material: Diamond |
| Dimensions and weight | Power supply, frequency: Single-phase AC 100 V to 240 V ±10% (grounding required), 50 Hz/60 Hz  
Air supply: 0.45 MPa to 0.7 MPa, Connection port: one-touch pipe joint for tubes with OD (Outer diameter) Φ 8 mm  
Power consumption: 1000 VA  
Weight: 2000 kg |

* at using DM43801 (Standard accessories)