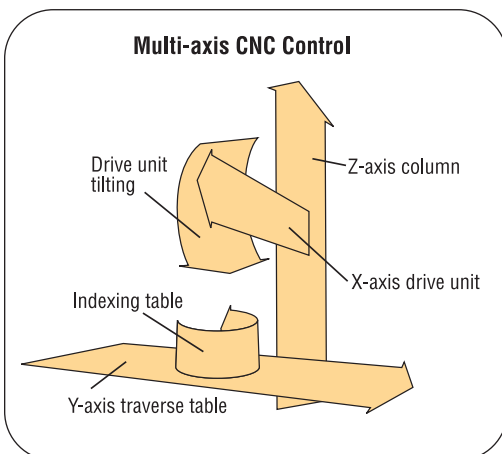


# CNC Form Measurement

## Boosting Productivity

Bulletin No. 1669



**Mitutoyo**

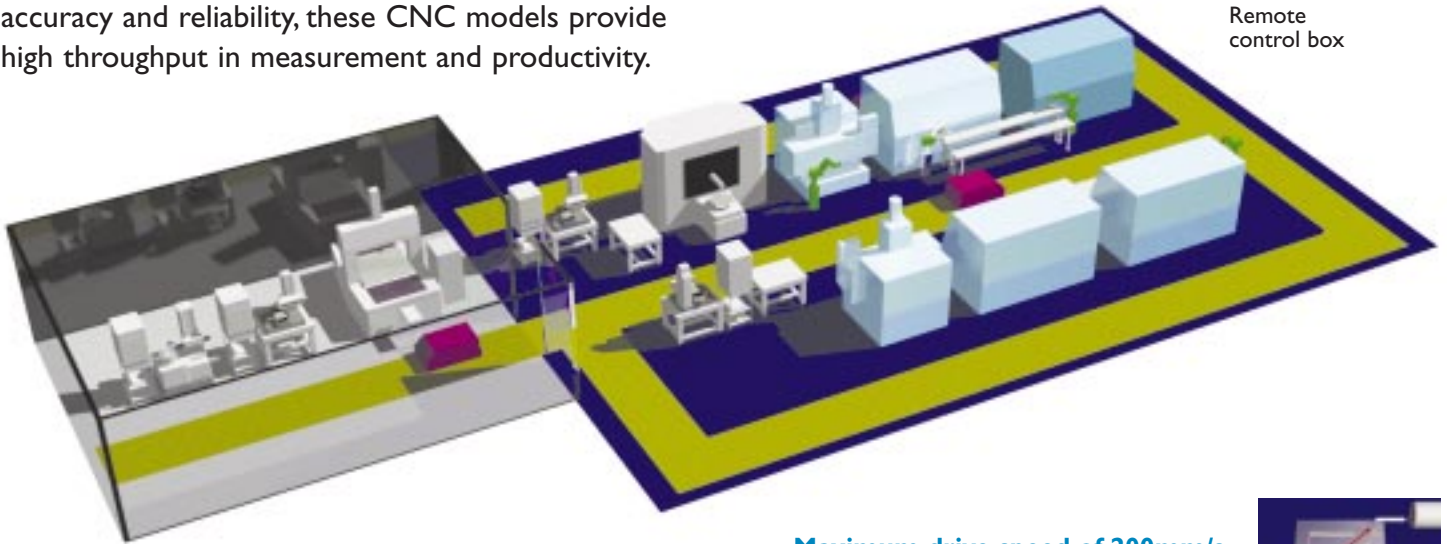
# CNC Form Measuring System

Innovates on the existing form measurement.

Mitutoyo offers innovative form measuring systems capable of automated contour/surface roughness measurement with independent/simultaneous multi-axis CNC control. In addition to the high measuring accuracy and reliability, these CNC models provide high throughput in measurement and productivity.



Remote control box



## Applications



### Using Y-axis traverse table for high-volume applications

- 100% inspection
- Multiple features
- Diagonal tracing
- Multiple workpieces
- Unmanned measurement

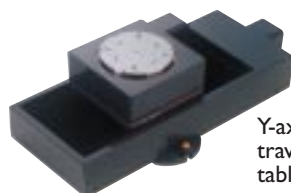


### Power-inclining drive unit for automatic tilting

- Slanted surface
- Chamfer
- Auto-leveling for surface roughness measurement

Indexing table ( $\theta$ -axis)

Range: +45° to -10°  
Speed: 1rpm  
Resolution: 0.000225°



Y-axis traverse table

Y-axis travel range: 200mm  
Straightness: 0.5 $\mu$ m/200mm  
Indication accuracy:  $\pm(2+2L/100)\mu$ m

- **Maximum drive speed of 200mm/s**  
It is 40 times faster than conventional models.

- **Independent/simultaneous multi-axis CNC control**  
Diagonal tracing and column tracking measurement are available.

- **Easy part programming**  
It is very effective when measuring multiple features on the same workpiece and multiple workpieces on the pallet.

- **Wide selection of models**  
The following six models are available.

CS-5000 CNC: Hybrid surface/contour measurement

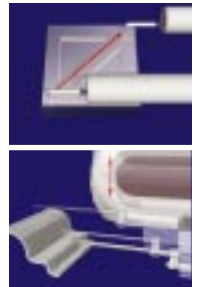
SV-3000 CNC: Surface roughness measurement

CV-3000 CNC: Contour measurement

CV-4000 CNC: Contour measurement (Holoscale)

SV-C3000 CNC: Combination of SV-3000 CNC & CV-3000 CNC

SV-C4000 CNC: Combination of SV-3000 CNC & CV-4000 CNC

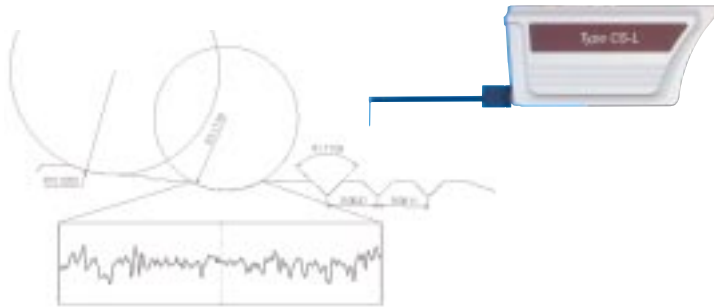


### For circular and sphere workpieces

- Automatic indexing with preset angle data
- Features on the circumference

## Form measurement

### Formtracer CS-5000CNC



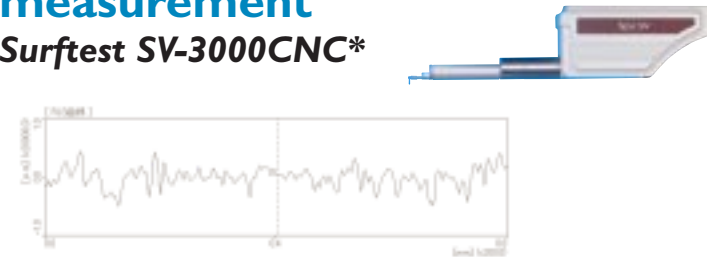
#### Specifications

<b>Measuring range</b>	X-axis	200mm
	Z-axis	300mm, 500mm (Detector: 12mm, 24mm)
<b>Resolution</b>	X-axis	0.00625μm
	Z-axis	0.004μm*

\* Using 12mm range stylus

## Surface Roughness measurement

### Surftest SV-3000CNC\*

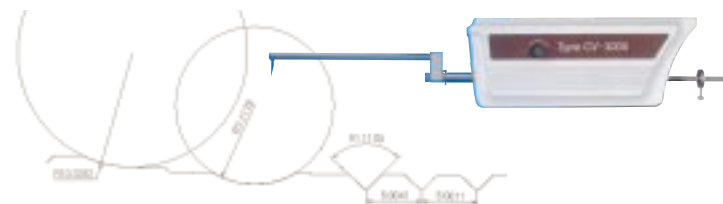


#### Specifications

<b>Measuring range</b>	X-axis	200mm
	Z-axis	300mm, 500mm (Detector: 8μm - 800μm)
<b>Resolution</b>	X-axis	0.05μm
	Z-axis	0.0001μm/8μm range
<b>Straightness</b>	X-axis	0.5μm/200mm

## Contour measurement

### Contracer CV-3000CNC / CV-4000CNC\*



#### Specifications

<b>Measuring range</b>	X-axis	200mm
	Z-axis	300mm, 500mm (Detector: 50mm)
<b>Resolution</b>	X-axis	0.05μm
	Z-axis	0.2μm (CV-3000CNC)
	Z-axis	0.05μm (CV-4000CNC)
<b>Indication accuracy</b>	X-axis	±(1+4L/200)μm
	Z-axis	±(3+ 2H /25)μm (CV-3000CNC)
	Z-axis	±(0.8+ 0.5H /25)μm (CV-4000CNC)
<b>Straightness</b>	X-axis	2μm/200mm



CS-5000CNC



SV-3000CNC



CV-3000CNC

\* Surftest/Contracer combination models are available.

SV-C3000CNC: Combination of SV-3000CNC & CV-3000CNC

SV-C4000CNC: Combination of SV-3000CNC & CV-4000CNC

# Innovation on form measurement

**CNC  
Operation  
for  
Accuracy  
and  
Productivity**



- Coordinate Measuring Machines
- Vision Measuring Systems
- Surface Roughness, Form and Contour Measurement
- Digital Scale and DRO Systems
- Optical Measuring Machines
- Sensor Systems
- Hardness Measuring Machines
- Small Tool Instruments and Data Management



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