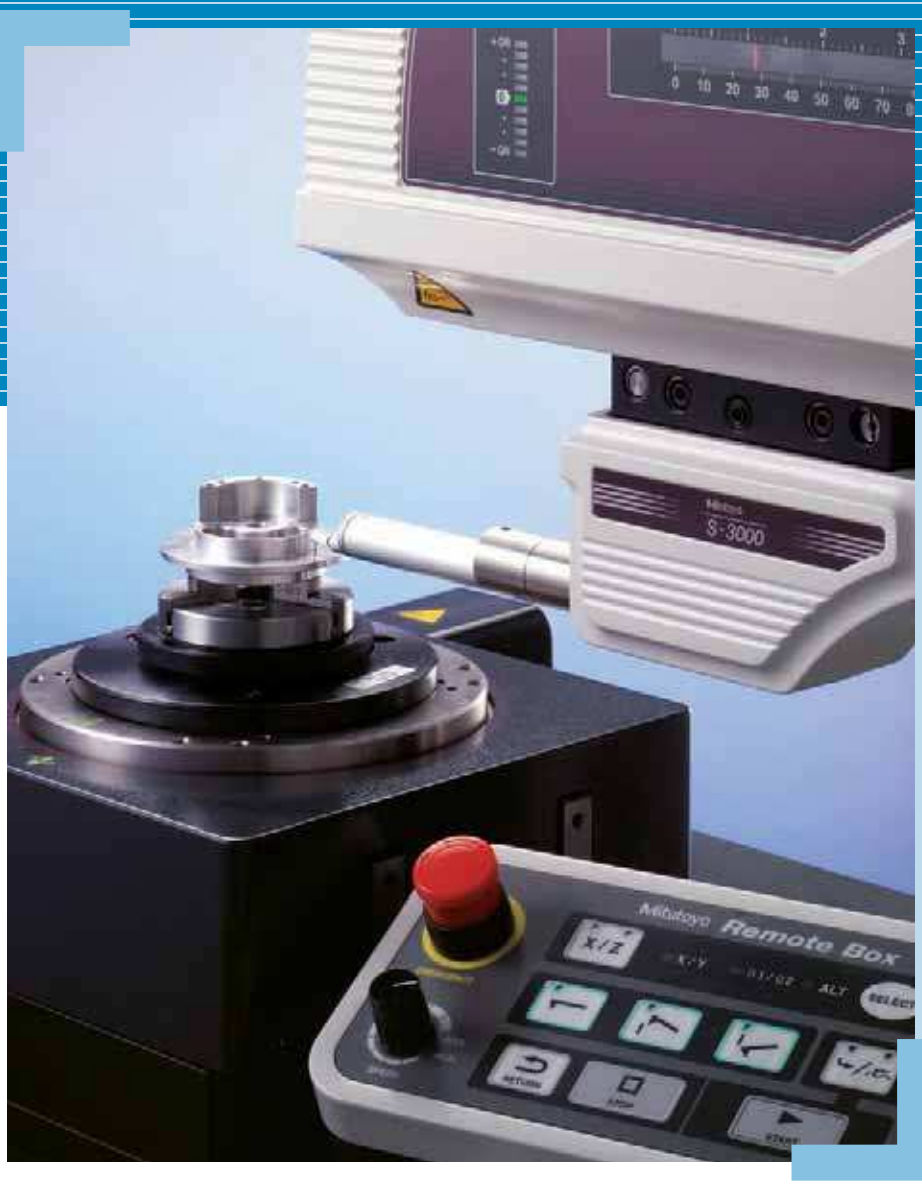
Surface Roughness Measuring System

SURFTEST SV-3100 Series

Bulletin No. 2068



Improve total throughput and perform highly accurate surface roughness measurement with best-in-class positioning speed and precision

Mitutoyo

Powerful Support for Greater Efficiency in Surface Roughness Measurement!

Shorter measurement time

Drive unit (X-axis): 80mm/s, column (Z2-axis): 20mm/s
The faster drive speed shortens the total measurement time.

Auto-leveling table (option)
Leveling is performed automatically even for complex measurement surfaces, dramatically reducing setting time.

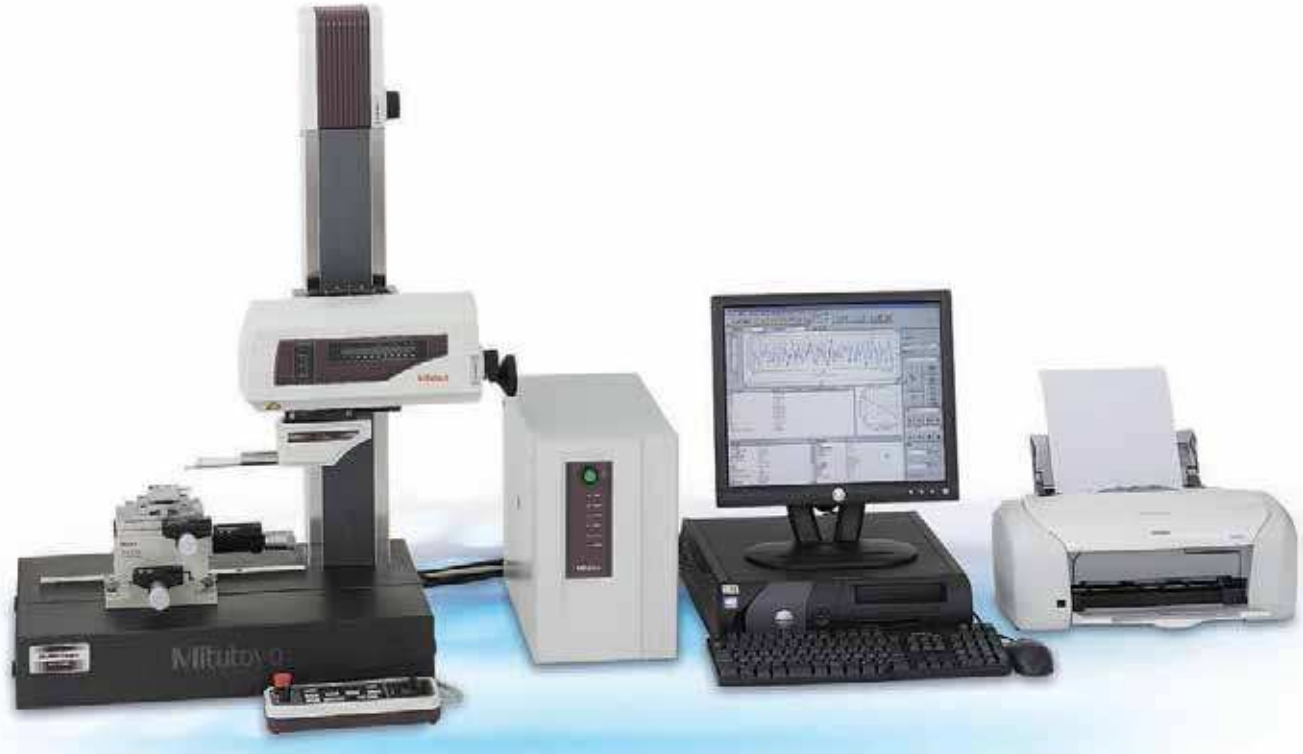
Eliminate human error

Column (Z2-axis) incorporates an ABS (absolute origin) scale
Improved repeatability for operations such as continuous automatic measurement of small holes in the vertical direction or repetitive measurement of difficult-to-position parts.

Additional automation can be achieved using a Y-axis table and a rotary table (option)
Automatic measurement of large numbers of parts one at a time or many parts at different locations on the worktable can be performed by attaching accessories such as a Y-axis table and a rotary table to dramatically reduce the manual workload.

High durability

Ceramic guides
To ensure that the drive unit (X-axis) maintains its straightness for a long time, the tester uses ceramic guides that have excellent wear characteristics and minimal deformation over time. The use of ceramic also provides a maintenance-free design because lubrication with oil to prevent corrosion is not required.



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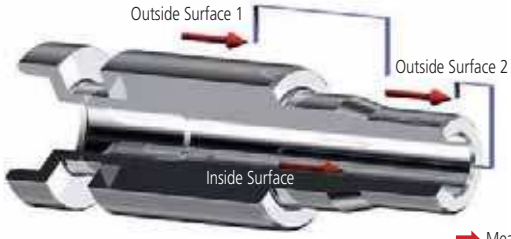
High accuracy linear encoders on X/Z2-axes

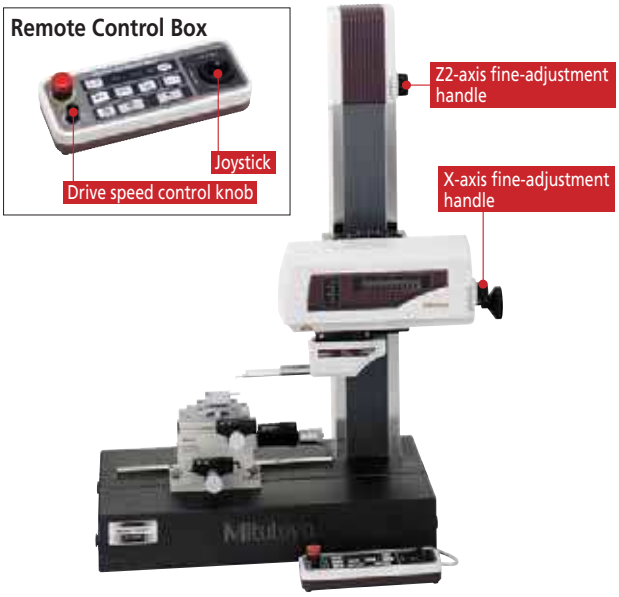
The drive unit (X-axis) and column (Z2-axis) are equipped with high-accuracy linear encoders (ABS type on Z2-axis) enabling fully automatic measurement combining vertical and horizontal movement. This improves reproducibility of continuous automatic measurement of small holes in the vertical direction and repeated measurement of parts which are difficult to position.



Continuous Measurement Example
(Outside Surface 1 → Outside Surface 2 → Inside Surface)

Wide range of operation options from high-speed drive to fine manual adjustment

In addition to the shorter traversing time achieved by the high-speed drive performance (drive unit (X-axis): 80mm/s, column (Z2-axis): 20mm/s), the tester also allows the fine manual adjustment needed for positioning when measuring very small holes.



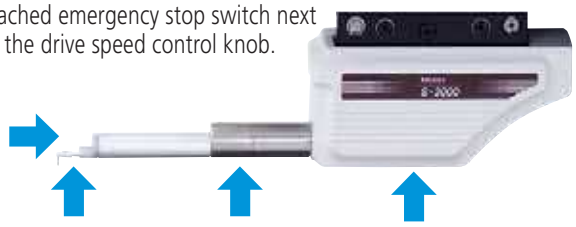
Overview of using fine adjusters for small hole measurement

Y- and Z-axis alignment can be performed using the column (Z2-axis) fine vertical positioning and accessories such as the cross stage (option).

Measurement start positioning using the fine adjustment function of the drive unit (X-axis).

Safety Functions to Protect Operator, Measuring Unit, and Workpiece

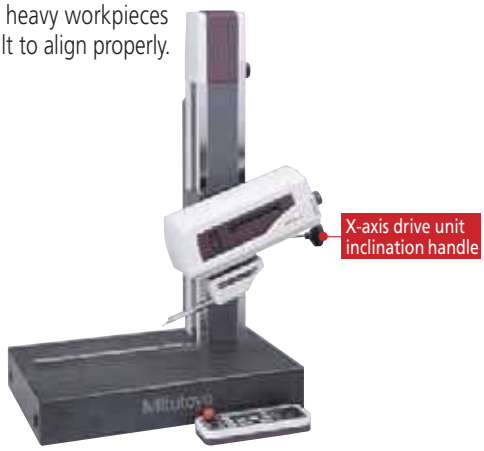
- To enhance safety during fast traverse, the Z-axis detector unit incorporates a safety device (Automatic Stop-On-Collision Mechanism) and the new remote control box features an easily reached emergency stop switch next to the drive speed control knob.



- All detector and drive unit cables are housed inside the main unit to eliminate any risk of abrasion and guarantee trouble free, high-speed operation.

Product range includes models with a tilting mechanism on the drive unit (X-axis).

Models with a tilting mechanism on the drive unit (X-axis) are valuable in situations such as when measuring on inclined surfaces or on heavy workpieces that are difficult to align properly.



Model No.	Drive unit (X-axis)	Z2-axis (column) moving range	Base size
SV-3100S4	100mm	300mm	600x450mm
SV-3100H4		500mm	
SV-3100W4			1000x450mm
SV-3100S8	200mm	300mm	600x450mm
SV-3100H8		500mm	
SV-3100W8			1000x450mm

* Models are also available with or without the drive unit (X-axis) tilting mechanism.