Formtracer Extreme CS-5000CNC / CS-H5000CNC

SERIES 525 — CNC Form Measuring Instruments

CS-5000CNC with personal computer system and software

* PC stand not included

Remote box

Wide range detector employing active control technology

FEATURES

- High-accuracy stylus type CNC Surface Measuring Instrument that allows simultaneous measurement of surface roughness and form/contour.
- The X1 axis has a maximum drive speed of 1.57"/s (40 mm/s) and Z2 axis has a maximum drive speed of 7.87"/s (200 mm/s). This permits high-speed positioning that may result in a large increase in the throughput of multiple-profile / multiple-workpiece measurement tasks.
- A Mitutoyo Laser Holoscale is incorporated in the X1 axis and Z1 axis so that high resolution (X1 axis: 6.25nm, Z1 axis: 4nm/8nm) is achieved and batch measurement of form / contour and surface roughness can be made.
- The active control method is employed for the Z1-axis detector to implement a wide-range measurement capability wherein the variation in dynamic measuring force is restricted.
- Since the Z1-axis detector incorporates an anti-collision safety device, the detector unit will automatically stop even if its main body collides with a workpiece or fixture.
- For models with the α-axis, it is possible to perform continuous measurement over horizontal and inclined surfaces by power-tilting the X1 axis.
- For models with the Y-axis table, it is possible to expand the measuring range for multiple workpieces, etc., through positioning in the Y-axis direction.
- Supplied with the easy-to-operate Remote Box, the user can make any movement by selecting the required axis using the two joysticks. The current axis selection is easily identified by the icon on the key top.
- Uses USB for communicating with the Data Processing / Analysis Unit (optional).

Technical Data:

X1 axis

Measuring range:	8" (200mm)
Resolution:	0.25µin (0.00625µm)
Measurement method:	Laser Holoscale
Drive speed:	Max. 1.57"/s (40mm/s) (in CNC mode) 0 - 1.57"/s (0 - 40mm/s) (in joystick control mode)
Measuring speed:	0.0008 - 0.008"/s (0.02 - 0.2mm/s) (surface roughness) 0.0008 - 0.08"/s (0.02 - 2mm/s) (form/contour)
Measuring direction:	Forward / backward direction
Traverse linearity:	(4+1.5L)µin {(0.1+0.0015L)µm} with standard stylus (8+1.5L)µin {(0.2+0.0015L)µm} with 2X-long stylus
*Traverse linearity:	(2+3L)µin {(0.05+0.0003L)}µm with standard stylus (4+1.5L)µin {(0.1+0.0015L)}µm with 2X-long stylus
Linear displacement accuracy ±(20°C):	±(12+2L)µin {±(0.3+0.002L)µm}
*Linear displacement accuracy ±(20°C):	±(2.8+6.3+L)µin {±(0.16+0.001L)µm} L = Measured length inch (mm)

Z1 axis

Measuring range:	0.47" (12mm) (with standard stylus) 0.94" (24mm) (with 2X-long stylus)
Resolution:	0.16µin (0.004µm) (with standard stylus) 0.32µin (0.008µm) (with 2X-long stylus)
Stylus up/down:	Arc movement
Measurement method:	Laser Holoscale
Linear displacement accuracy (20°C):	±(12+120H)µin {±(0.3+I0.02HI)µm}
*Linear displacement accuracy (20°C):	±(2.8+120H)µin {±(0.07+I0.02HI)µm} H = Measured height inch (mm)
Measuring force:	4mN (with standard stylus) 0.75mN (with 2X-long stylus)
Traceable angle:	60° for ascent, 60° for descent (Depending on the workpiece surface condition)
Stylus tip: (ball stylus)	Radius: 5µm, angle: 40°, diamond (Radius: 0.25mm, sapphire)
Face of stylus:	Downward

Z2 axis (column unit)

Measuring range:	12" (300mm) (20" (500mm) high column type)
Resolution:	1.97µin (0.05µm)
Measurement method:	Reflective-type linear encoder
Drive speed:	Max. 7.87"/s (200mm/s) (in CNC mode) 0 - 1.97"/s (0 - 50mm/s) (in joystick control mode)
Base size (W x D):	29.5 x 23.6" (750 x 600mm)
Base material:	Granite
Dimension (W x D x H):	31.5 x 24.4 39.4" (800 x 620 x 1000mm) 31.5 x 24.4 x 47.2" (800 x 620 x 1200mm: high column type)
Mass:	529 lbs (240kg) 551 lbs (250kg): high column type))

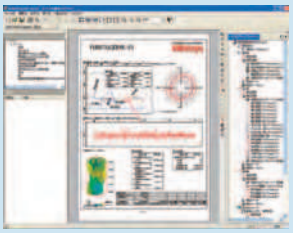
*CS-H5000CNC

MiCAT
Mitutoyo Intelligent Computer Aided Technology
the standard in world metrology software
FORM

Optional Software

FORMTRACEPAK V5
Enables control of the optional motor-driven Y-axis table and rotary table for realizing efficient measurement automation. You can also perform contour evaluation that allows free analysis of level differences, angle, pitch, area and other characteristics based on surface roughness data. In addition, analysis results can be saved in the "html" or "mhtml" format which allows Internet Explorer or MS-Word compatibility, allowing PC without layout editing programs to view analysis results.


Contour Measurement Screen

Surface Roughness Measurement Screen


ASPHERICALPAK
Aspherical lens analysis program
Recommended to be used with CS-H5000CNC and CS-5000CNC models. To make full use of software functions, optional accessories such as y-axis table, 3DALT and theta θ-1 table are required. The functions can be restricted without the optional accessories.

Formtracer Extreme CS-5000CNC / CS-H5000CNC

SERIES 525 — CNC Form Measuring Instruments

SPECIFICATIONS

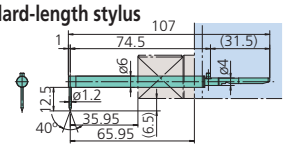
Model No.	CS-5000CNC	CS-5000CNC	CS-5000CNC	CS-5000CNC
Order No. (100V - 120V)	**525-721-1A**	**525-722-1A**	**525-723-1A**	**525-724-1A**
X1-axis measuring range	8" (200mm)	8" (200mm)	8" (200mm)	8" (200mm)
Z2-axis vertical travel	12" (300mm)	12" (300mm)	12" (300mm)	12" (300mm)
Y-axis table unit	—	—	Installed	Installed
α-axis unit	—	Installed	—	Installed

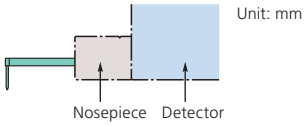
Model No.	CS-5000CNC	CS-5000CNC	CS-5000CNC	CS-5000CNC
Order No. (100V - 120V)	**525-741-1A**	**525-742-1A**	**525-743-1A**	**525-744-1A**
X1-axis measuring range	8" (200mm)	8" (200mm)	8" (200mm)	8" (200mm)
Z2-axis vertical travel	20" (500mm)	20" (500mm)	20" (500mm)	20" (500mm)
Y-axis table unit	—	—	Installed	Installed
α-axis unit	—	Installed	—	Installed

Model No.	CS-H5000CNC	CS-H5000CNC
Order No. (100V - 120V)	**525-761-1A**	**525-763-1A**
X1-axis measuring range	8" (200mm)	8" (200mm)
Z2-axis vertical travel	12" (300mm)	12" (300mm)
Y-axis table unit	—	Installed

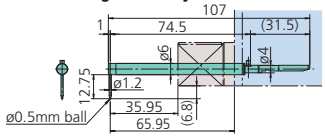
Stylus (except 525-896A)

12AAD543: Standard-length stylus

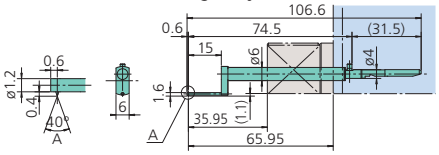




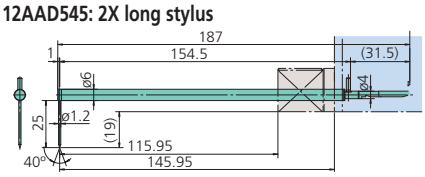
12AAD544: Standard-length ball stylus



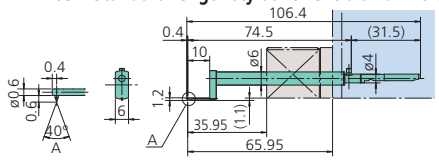
12AAD651: Standard-length stylus for small hole



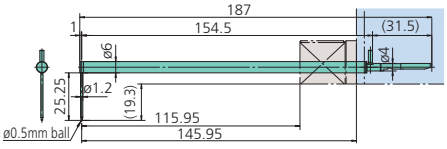
12AAD545: 2X long stylus



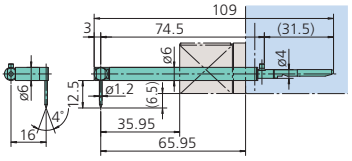
12AAD652: Standard-length stylus for extra-small hole



12AAD546: 2X long ball stylus



12AAD653: Standard-length eccentric stylus



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