

Contracer Extreme CV-3000CNC/CV-4000CNC

SERIES 218 – CNC Contour Measuring Instruments

- High-accuracy CNC contour/form measuring instrument.
- The X1, Y and Z2 axes have a maximum drive speed of 200 mm/s, which permits high-speed positioning that potentially offers a large increase in the throughput of multiple-profile/multiple-workpiece measurement tasks.
- For models with the α axis, it is possible to perform continuous measurement over horizontal and inclined surfaces by power-tilting the detector unit.
- The drive unit of the CV-4000CNC series is equipped with a Laser Hologage detector giving excellent narrow/wide range accuracy and resolution in the Z1 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.
- Enables inclined plane measurements through 2-axis simultaneous control in the X- and Y-axis directions.
- The Z1 axis incorporates an anti-collision safety device to automatically stop the detector unit if it collides with a workpiece or jig.
- Supplied with an easy-to-operate Remote Box, on which 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.
- Communication with the Data Processing/Analysis section is via USB.

Contracer Extreme
CV-3000CNC



Technical Data

X1 axis	
Measuring range:	200 mm
Resolution:	0.05 μ m
Scale type:	Reflective-type linear encoder
Drive speed:	200 mm/s (max., CNC) 0 - 60 mm/s (joystick)
Measuring speed:	0.02 - 2 mm/s
Measuring direction:	Forward/backward
Traverse straightness:	2 μ m / 200 mm, with the X1 axis in horizontal orientation
Accuracy (at 20°C):	$\pm(1+4L/200)$ μ m (CV-3000CNC), $\pm(0.8+4L/200)$ μ m (CV-4000CNC) L = drive length (mm)
α axis	
Inclination angle:	-45° (CCW) to +10° (CW)
Resolution:	0.000225°
Inclination:	1 rpm
Z2 axis (column)	
Vertical travel:	300 mm or 500 mm
Resolution:	0.05 μ m
Scale type:	Reflective-type linear encoder
Drive speed:	200 mm/s (max., CNC) 0 - 60 mm/s (joystick)
Base size (W x H):	750 x 600 mm
Base material:	Granite
Z1 axis (detector unit)	
Measuring range:	± 25 mm
Resolution:	0.2 μ m (CV-3000CNC), 0.05 μ m (CV-4000CNC)
Scale type:	Linear encoder (CV-3000CNC) Laser Hologage (CV-4000CNC)
Accuracy (at 20°C):	$\pm(2+4H/100)$ μ m (CV-3000CNC) $\pm(0.8+0.5H/25)$ μ m (CV-4000CNC) H: measurement height from the horizontal position (mm)
Stylus movement:	Arc
Stylus orientation:	Upward / downward
Measuring force:	30 mN
Traceable angle:	Ascent: 70°, descent: 70° (using the standard stylus provided and depending on the surface roughness)
Stylus tip	Carbide, R25 μ m
Y axis	
Measuring range:	200 mm
Resolution:	0.05 μ m
Drive speed:	Max. 200 mm/s (in CNC mode) 0-60 mm/s (in joystick control mode)
Max. table loading:	20 kg
Traverse straightness:	2 μ m / 200 mm
Accuracy (at 20°C):	$\pm(2+2L/100)$ μ m, L = length between arbitrary two point (mm)
Mass:	240 kg (250 kg tall-column type), the Y-axis table and a vibration isolation stand are excluded
Power supply:	100 - 240VAC $\pm 10\%$, 50/60Hz
Power consumption:	500 W (main unit only)

Hologage system

Mitutoyo's innovative Laser Hologage technology provides near interferometer-grade accuracy using the interference phenomenon of diffracted light, coupled with a resolution of 0.05 μ m over the entire detecting range of 50 mm.

