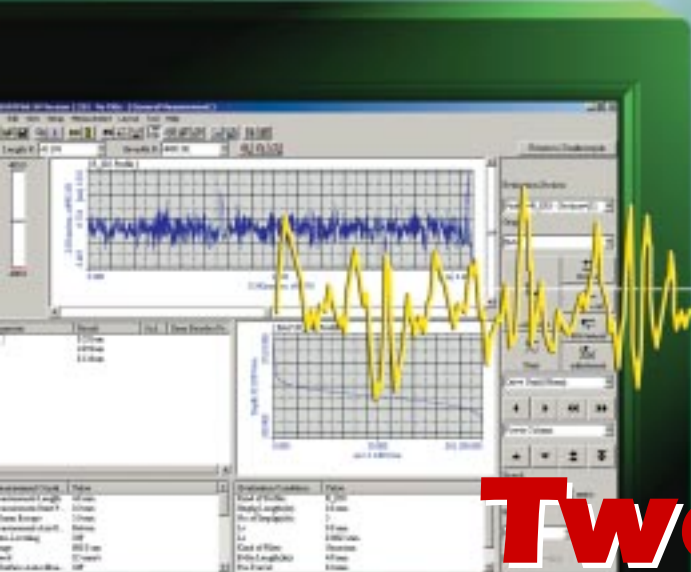


Mitutoyo

FORMTRACER[®] SV-C3000/4000

Combination Surftest/Contracer Unit



**Two-Role
Performance!**



Double Duty! Surftest + Contracer

The SV-C3000/4000 series is a surface roughness/contour combination measuring machine that functions as a Surftest and a Contracer just by replacing the detecting unit. This series is perfect for use in a prototype fabrication section or research and development section of a factory where the total assessment of workpiece surface roughness and contour is required.

Less than the total cost of the Surftest and Contracer

Multifunction analysis software has been installed for powerful and advanced analysis

Only half the installation space of both the Surftest and Contracer

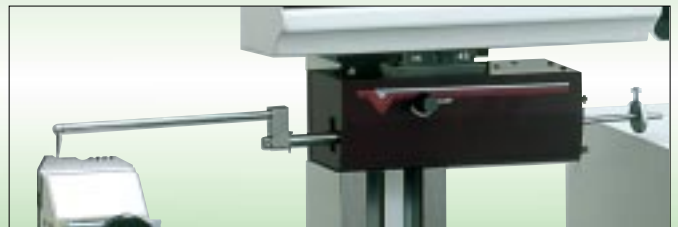
FORMTRACER FORMTRACER SV-C3000



Photo: SV-C3000S4 with personal computer system

Featuring a digital scale unit installed in the Z-axis detection unit (SV-C3000 Series)

The SV-C3000 Series, which uses a digital scale unit in its Z-axis detection unit, achieves a resolution of 0.0002 mm (.000008") at a full stroke of ± 50 mm (± 1 "). And unlike conventional, differential transformer units, there is no change in resolution as the range of magnification changes. The result: a dramatic improvement in operation and performance!



FORMTRACER SV-C 3000/4000 Selection Guide

SV-C3000H4 SV-C4000H4

X-axis traverse range:
100mm (4")
Vertical travel:
450mm (18")
Base size (WxD):
610x450mm (24"x18")

SV-C3000W4 SV-C4000W4

X-axis traverse range:
100mm (4")
Vertical travel:
450mm (18")
Base size (WxD):
1000x450mm (40"x18")

SV-C3000S8 SV-C4000S8

X-axis traverse range:
200mm (8")
Vertical travel:
250mm (10")
Base size (WxD):
610x450mm (24"x18")

SV-C3000H8 SV-C4000H8

X-axis traverse range:
200mm (8")
Vertical travel:
450mm (18")
Base size (WxD):
610x450mm (24"x18")

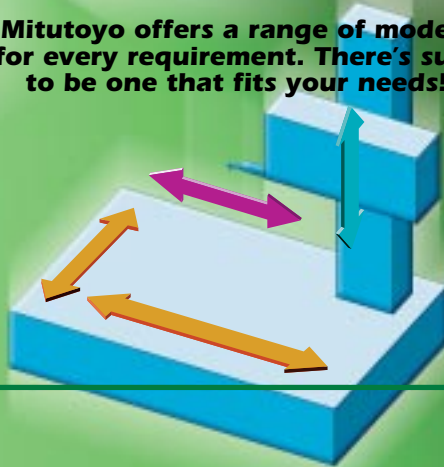
SV-C3000S4 SV-C4000S4

X-axis traverse range:
100mm (4")
Vertical travel:
250mm (10")
Base size (WxD):
610x450mm (24"x18")

SV-C3000W8 SV-C4000W8

X-axis traverse range:
200mm (8")
Vertical travel:
450mm (18")
Base size (WxD):
1000x450mm (40"x18")

Mitutoyo offers a range of models for every requirement. There's sure to be one that fits your needs!



FORMTRACER FORMTRACER SV-C 4000

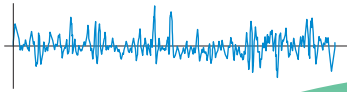


Photo: SV-C4000S4 with personal computer system

Mitutoyo's Holographic Scale delivers super-high accuracy (SV-C4000 Series)

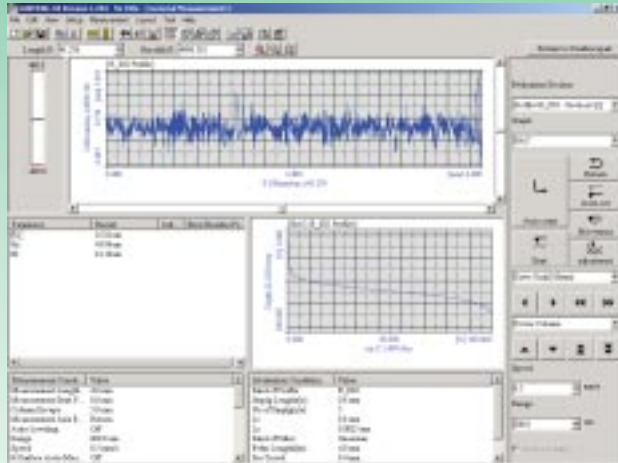
The new, top-of-the-line Holography Scale is based on the interference phenomenon of diffracted light, ensuring the absolute in accuracy. It allows dimensional measurement at a resolution of 0.00005mm (.000002") over the entire measurement range of 50mm (2").





For Surface Roughness Measurement : SURFPAK-SV

- SURFPAK®-SV dedicated analysis software allows 57 types of parameters that conform to international standards, including ISO, DIN, ANSI, and JIS to be analyzed.
- This system supports 10 types of measured profiles, including the roughness profile, primary profile, and waviness profile, and 2 types of motifs.
- The system supports 7 types of digital filters, including a Gaussian filter.
- Various analysis graphs such as the bearing area curve (BAC) and amplitude distribution graph are easily displayed.
- The system can delete unnecessary data such as scratches and assess an inclination and a rounded surface after digital compensation.
- The system has a wide measuring range of a maximum of 800µm.
- An auto-leveling table (option), which automatically levels a workpiece measuring surface, can be mounted.
- The system supports optional software including the fine contour measuring program (FORMPAK®-SV).
- Report generation function (printer is optional.)

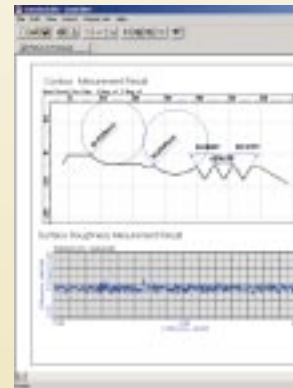
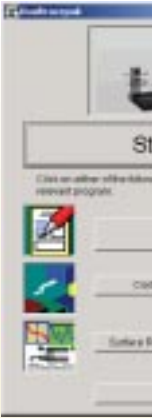


Measurement result window

■ Surfptest (Surface Roughness Measurement) Functions

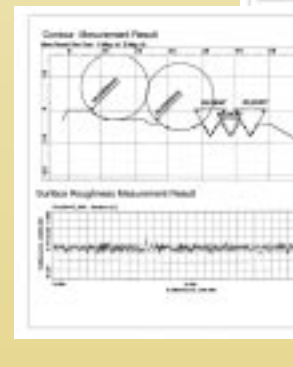
X-axis traverse range		SV-C3000S4/H4/W4, SV-C4000S4/H4/W4: 100mm (4") SV-C3000S8/H8/W8, SV-C4000S8/H8/W8: 200mm (8")
Straightness		SV-C3000S4/H4/W4, SV-C4000S4/H4/W4: (0.05+1.5L/1000)µm [(2+1.5L)µinch] SV-C3000S8/H8/W8, SV-C4000S8/H8/W8: 0.5µm/200mm (20µinch/8")
Measuring range/Resolution		800µm/0.01µm(3200µinch/.4µinch), 80µm/0.001µm(3200µinch/.04µinch), 8µm/0.0001µm(320µinch/.004µinch)
Standard detector	Stylus Measuring force Skid	Measuring force 0.75mN: Material: Diamond, 60° cone, Tip radius: 2µm (79µinch) Measuring force 4mN: Diamond, 90° cone, Tip radius: 5µm (200µinch) Carbide, Radius of curvature: 40mm (1.6")
Assessed profiles		P (primary profile), R (roughness profile), WC, WCA, WE, WEA, DIN4776 profile, E (envelope residual profile), R-motif (roughness motif), W-motif (waviness motif)
Evaluation parameters	P, R, WC, WCA, WE, WEA, E, DIN4776 R-motif W-motif	Ra, Rq, Rz, Rz(JIS), Ry, Ry(DIN), Rc, Rp, Rpmax, Rpi, Rv, Rvmax, Rvi, Rt, Rti, R3z, R3zi, R3y, S, Pc, Sm, HSC, mr, dc, plateau ratio, mrd, Rk, Rpk, Rvk, Mr1, Mr2, Da, Dq, Ia, Iq, Sk, Ku, Lo, Lr, A1, A2 Rx, R, AR, SR, SAR, NR, NCRX, CPM Wte, Wx, W, AW, SW, SAW, NW
Analysis graphs		ADC, BAC1, BAC2, power spectrum chart, auto-correlation chart, slope distribution chart, local peak distribution chart, parameter distribution chart
Digital filter		2CR-50%, 2CR-75%, 2CR-50% (phase corrected), 2CR-75% (phase corrected), Gaussian-50% (phase corrected)
Cutoff length	λc fl fh	0.025mm, 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm or arbitrary value* (.001", .003", .01", .03", .1", .3", 1" or arbitrary value*) 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm or arbitrary value* (.003", .01", .03", .1", .3", 1" or arbitrary value*) 0.025mm, 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm or arbitrary value* (.001", .003", .01", .03", .1", .3" or arbitrary value*)
Sampling length (L)		0.025mm, 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm or arbitrary value* (.001", .003", .01", .03", .1", .3", 1" or arbitrary value*)
Recording magnification		Vertical: 100X - 500,000X Horizontal: 1X - 10,000X

*Can be specified in the range from 0.025mm to 200mm (.001" to 8").



Layout edit window

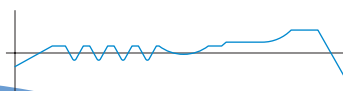
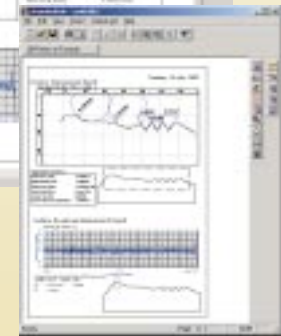
The layout editing function allows both Contour and Surface roughness analysis to be printed out in one report.



ACEPAK

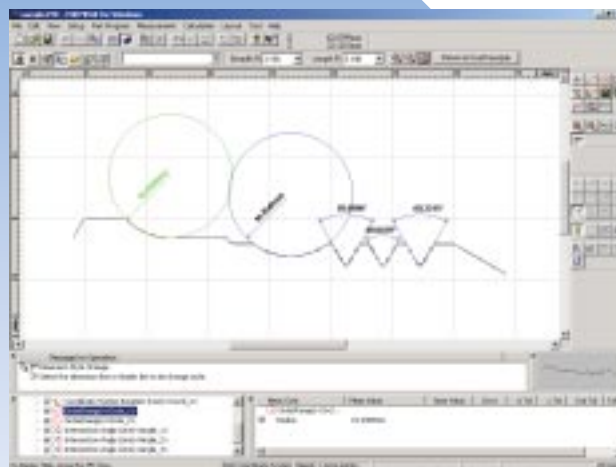


Start!



For Contour Measurement : FORMPAK-1000

- The dedicated analysis software, FORMPAK®-1000, allows easy calculation, tolerancing, and analysis of two-dimensional coordinate (contour) data obtained by measuring geometric elements such as points, lines, circles, angles, and pitches.
- In the Formtracer, a high-accuracy linear scale is installed on the X axis and also in the Z-axis detecting unit. Since high-resolution measurement can always be performed at full stroke, the measuring magnification does not need to be changed. The unit can be efficiently measure various workpiece sizes.
- There are two models: the SV-C3000 series (standard type) which has a Z-axis resolution of 0.2μm, and the SV-C4000 series (high-accuracy type) which has a resolution of 0.05μm.
- The X-axis drive unit has excellent straightness which guarantees high-accuracy.
- The system can compare measured data with nominal data or two pieces of measured data, and then display the deviation. Not only can the coordinate value and specific dimension be measured, but the form can also be assessed and the wear condition can be observed for the entire workpiece.
- Report generation function (printer is optional)



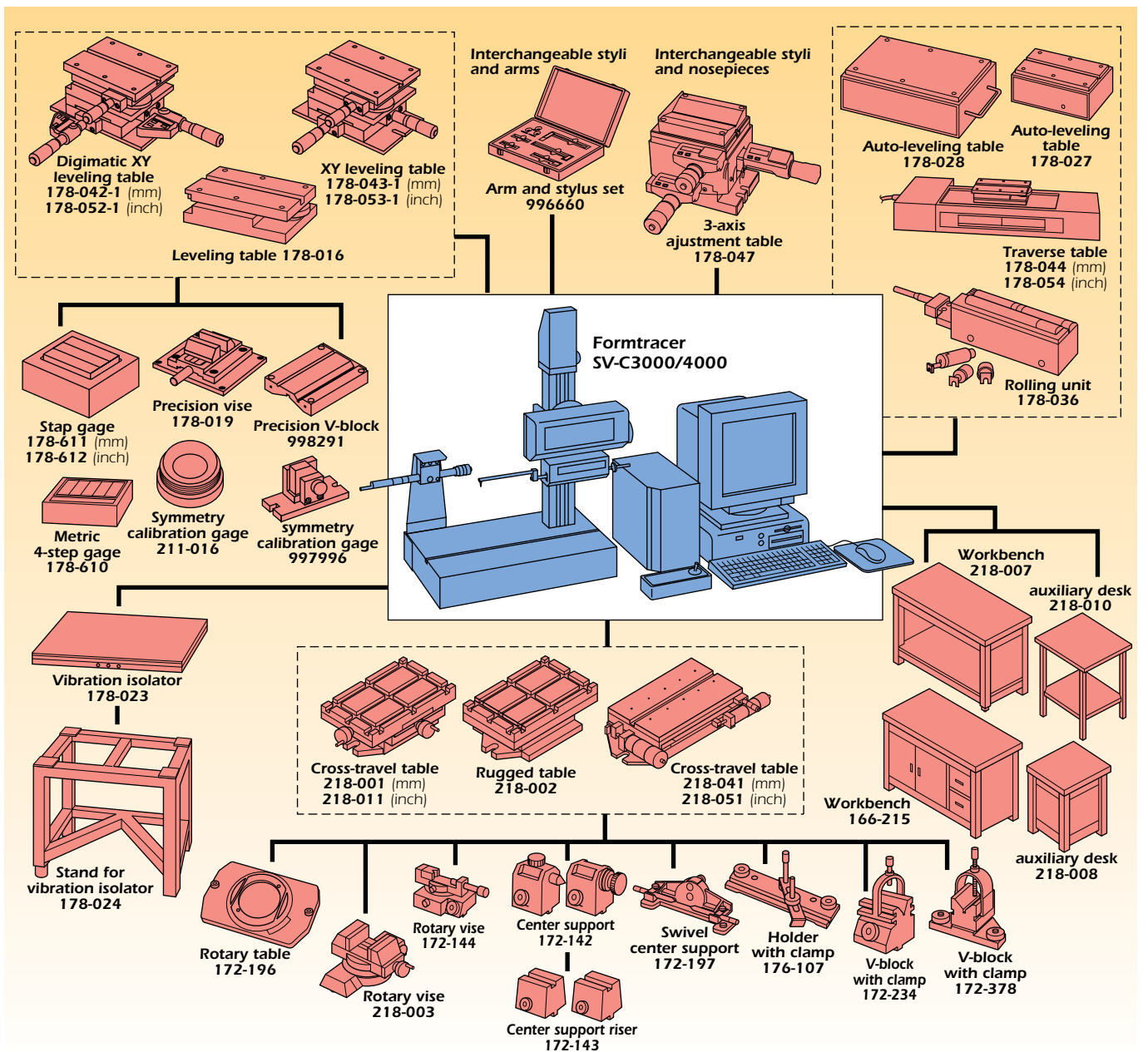
Analysis result window

■ Contracer (Contour Measuring) Functions

Measuring range	X-axis	SV-C3000S4/H4/W4, SV-C4000S4/H4/W4: 100mm (4") SV-C3000S8/H8/W8, SV-C4000S8/H8/W8: 200mm (8")
	Z-axis	50mm (2")
Straightness		SV-C3000S4/H4/W4, SV-C4000S4/H4/W4: 0.8μm/100mm (32μinch/4") SV-C3000S8/H8/W8, SV-C4000S8/H8/W8: 2μm/200mm (80μinch/8")
Accuracy	X-axis	SV-C-3000S4/H4/W4: ±(1+2L/100)μm [±(40+20L)μinch]* SV-C-3000S8/H8/W8: ±(1+4L/200)μm [±(40+20L)μinch]* SV-C-4000S4/H4/W4: ±(0.8+2L/100)μm [±(31+20L)μinch]* SV-C-4000S8/H8/W8: ±(0.8+4L/200)μm [±(31+20L)μinch]*
	Z-axis	SV-C-3000 models: ±(3+12HI/25)μm [±(120+140HI)μinch]** SV-C-4000 models: ±(0.8+10.5HI/25)μm [±(31+110HI)μinch]**
Resolution	X-axis	0.00005mm (.000002")
	Z-axis	SV-C3000 Series: 0.0002mm (.000008") SV-C4000 Series: 0.00005mm (.000002")
Stylus tip orientation		Upward/downward
Traversing direction		Forward/backward
Measuring force		30mN (3gf)
Maximum traceable angle		77 degrees for upward slope*** 87 degrees for downward slope***
Drive unit inclinating range		±45 degrees
Stylus speed	Tracing	0.02mm/s to 2mm/s (.0008"/s to .08"/s), Can be specified by 7 steps.
	Retracing	5mm/s (.2"/s)
	Positioning	0.1mm/s to 5mm/s (.004"/s to .2"/s), Can be adjusted manually with a operation box.

* L = Traverse length (mm [inch])
** H = Measuring height (within ±25mm [±1inch])
*** Depends on the workpiece surface condition.

System Diagram



Standard accessories

- 354884** High one-side cut stylus
- 996506** Straight arm
- 546-113** Dial tension gage
- 178-043-1** Leveling table (CV-4000 only, for metric)
- 178-053-1** Leveling table (CV-4000 only, for inch/mm)
- 211-016** Symmetry calibration gage (CV-4000 only)
- 537976** Carrying bolts
- 352637** Lubricant
- 998862** Pin gage (mm) and holder*
- 537392** Thread gage (p=1 mm)*
- 998861** Pin gage (inch) and holder**
- 538333** Thread gage (p=.05")**
- 178-601** Roughness specimen*
- 178-602** Roughness specimen**
- 12AAB355** Skidless nosepiece
- 178-611** Step gage*

- 178-612** Step gage**
- 12AAB338** WE-curve stylus
- 996786** Inclined stage (SV-C3000 only)

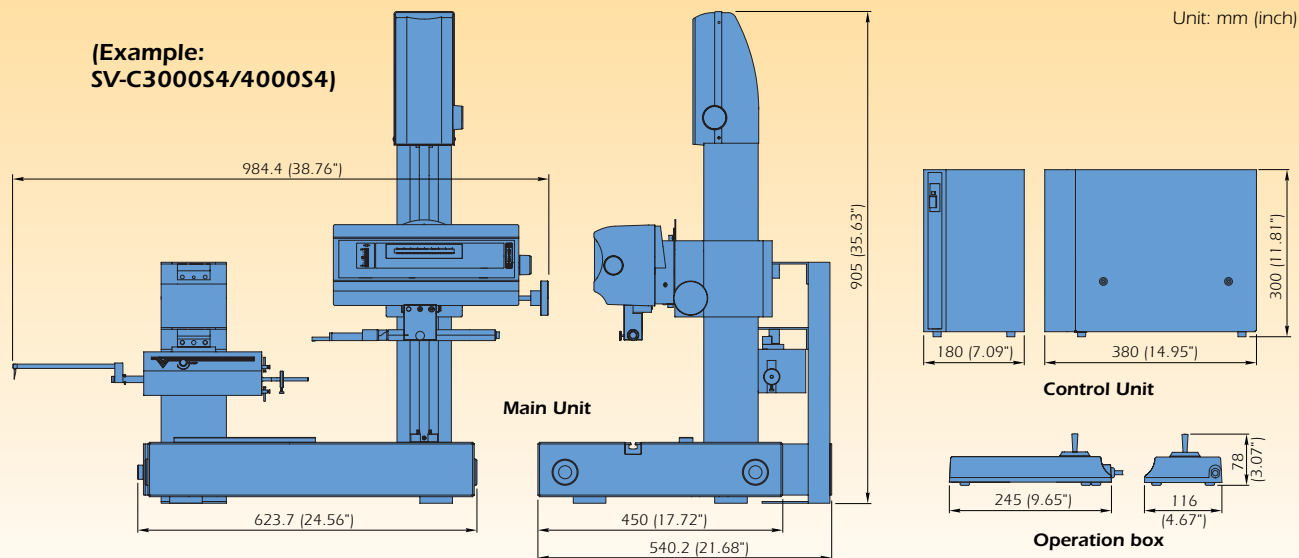
- Gauge blocks
- | | | |
|-------------------|---------------------------|---------------------------|
| (CV-C3000) | 611671-021 (10mm)* | 611194-231 (.4")** |
| | 611672-021 (20mm)* | 611198-231 (.8")** |
| | 611675-021 (50mm)* | 611202-231 (2")** |
| (CV-C4000) | 611671-017 (10mm)* | 611194-221 (.4")** |
| | 611672-017 (20mm)* | 611198-221 (.8")** |
| | 611675-017 (50mm)* | 611202-221 (2")** |

User's manual (1set), Fuse, Wrenches, Screw driver, Connecting cables, Power cord, GND wire, Machine cover, Driving cable assy, Column cable assy, Detector cable assy

Gage blocks are provided with Grade 0 of ISO/JIS/DIN or Grade 2 of Federal Standard for SV-C3000 and Grade K of ISO/JIS/DIN or Grade 1 of Federal Standard for SV-C4000

* for metric
** for inch/mm

Dimensions



Specifications

Model		SV-C3000S4	SV-C3000H4	SV-C3000W4	SV-C3000S8	SV-C3000H8	SV-C3000W8
Order No.	Measuring force of detector	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN
	100V AC	mm 525-800 840	525-801 841	525-802 842	525-805 845	525-806 846	525-807 847
		inch/mm 525-810 850	525-811 851	525-812 852	525-815 855	525-816 856	525-817 857
	110V AC	mm 525-800C 840C	525-801C 841C	525-802C 842C	525-805C 845C	525-806C 846C	525-807C 847C
		inch/mm — —	— —	— —	— —	— —	— —
	120V AC	mm 525-800A 840A	525-801A 841A	525-802A 842A	525-805A 845A	525-806A 846A	525-807A 847A
		inch/mm 525-810A 850A	525-811A 851A	525-812A 852A	525-815A 855A	525-816A 856A	525-817A 857A
	220/230V AC	mm 525-800D 840D	525-801D 841D	525-802D 842D	525-805D 845D	525-806D 846D	525-807D 847D
		inch/mm 525-810D 850D	525-811D 851D	525-812D 852D	525-815D 855D	525-816D 856D	525-817D 857D
	240V AC	mm 525-800E 840E	525-801E 841E	525-802E 842E	525-805E 845E	525-806E 846E	525-807D 847E
		inch/mm 525-810E 850E	525-811E 851E	525-812E 852E	525-815E 855E	525-816E 856E	525-817E 857E

Model		SV-C4000S4	SV-C4000H4	SV-C4000W4	SV-C4000S8	SV-C4000H8	SV-C4000W8
Order No.	Measuring force of detector	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN	0.75mN 4mN
	100V AC	mm 525-820 860	525-821 861	525-822 862	525-825 865	525-826 866	525-827 867
		inch/mm 525-830 870	525-831 871	525-832 872	525-835 875	525-836 876	525-837 877
	110V AC	mm 525-820C 860C	525-821C 861C	525-822C 862C	525-825C 865C	525-826C 866C	525-827C 867C
		inch/mm — —	— —	— —	— —	— —	— —
	120V AC	mm 525-820A 860A	525-821A 861A	525-822A 862A	525-825A 865A	525-826A 866A	525-827A 867A
		inch/mm 525-830A 870A	525-831A 871A	525-832A 872A	525-835A 875A	525-836A 876A	525-837A 877A
	220/230V AC	mm 525-820D 860D	525-821D 861D	525-822D 862D	525-825D 865D	525-826D 866D	525-827D 867D
		inch/mm 525-830D 870D	525-831D 871D	525-832D 872D	525-835D 875D	525-836D 876D	525-837D 877D
	240V AC	mm 525-820E 860E	525-821E 861E	525-822E 862E	525-825E 865E	525-826E 866E	525-827D 867E
		inch/mm 525-830E 870E	525-831E 871E	525-832E 872E	525-835E 875E	525-836E 876E	525-837E 877E

X-axis traverse/measuring range		100mm (4")			200mm (8")		
Vertical travel of drive unit		250mm (10")	450mm (18")	450mm (18")	250mm (10")	450mm (18")	450mm (18")
Machine base type		Granite (610x450mm)		Cast iron (1000x450mm)	Granite (610x450mm)		Cast iron (1000x450mm)
Power supply		100-240V AC, 50/60Hz					
Power consumption		150VA (at max)					
Dimensions (WxDxH)	Main unit	984.4x450x905mm (38.76"x17.7"x35.63")	984.4x450x1105mm (38.76"x17.7"x43.5")	1361.4x450x1105mm (53.6"x17.7"x43.5")	1010.4x450x905mm (39.78"x17.7"x35.63")	1010.4x450x1105mm (39.78"x17.7"x43.5")	1387.4x450x1105mm (54.62"x17.7"x43.5")
	Control unit	180x380x300mm (7.1"x15.0"x11.8")					
	Operation box	245x116x78mm (9.6"x4.6"x3.1")					
Mass	Main unit	140kg (308 lbs.)	150kg (330 lbs.)	155kg (341 lbs.)	145kg (319 lbs.)	155kg (341 lbs.)	160kg (352 lbs.)
	Control unit	6.5kg (14.3 lbs.)					
	Operation box	0.8kg (1.76 lbs.)					

FORMTRACER EXTREME SV-C3000/4000 CNC

CNC Form Measuring System innovates on the existing form measurement.



JSAQ-052
ISO 9001

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Specifications are subject to change without notice.

