

KOSAKA 表面量測儀



SANPANY 三朋儀器公司

SANPANY 產品項目

- 光電、半導體檢測設備
- 精密量測
- 材料試驗
- 金像設備
- 環境試驗



KOSAKA 精密量測設備



- ET Series Micro figure Measurement
- SE Series Roughness & Contour Measurement
- EC Series Roundness Measurement

KOSAKA SEF-3500 量測項目

- Step Analysis
- Roughness Analysis
- Flatness Analysis
- 3D Figure Analysis
- Stress Analysis
- Contour Analysis



二次元・三次元表面粗さ・輪郭形状測定機

Surf·corder
SURFACE ROUGHNESS MEASURING INSTRUMENT

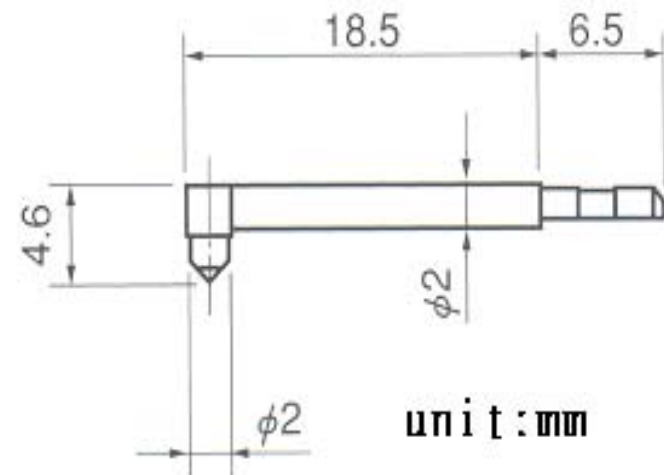
KOSAKA SEF-3500



 **SANPANY**

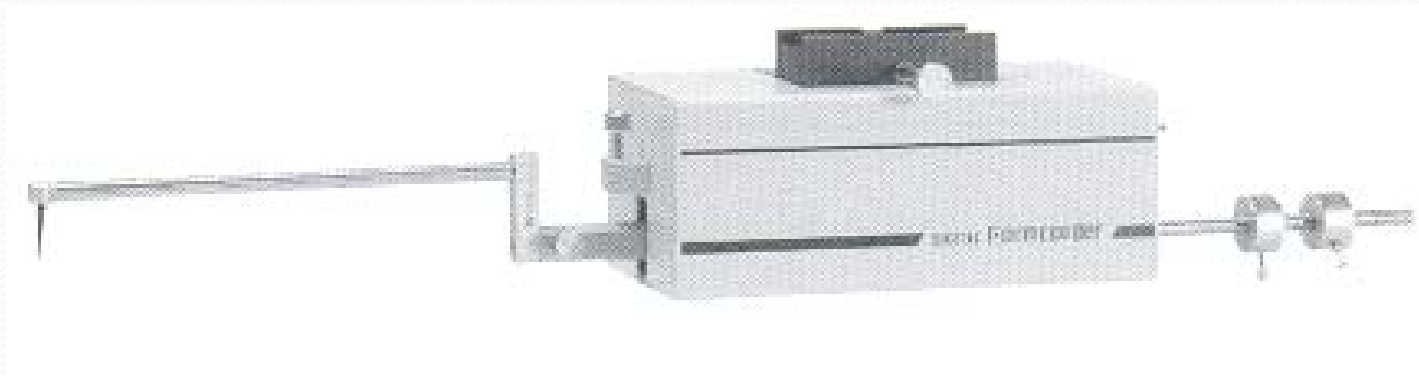
PICK-UP1 : PU-DJ2S

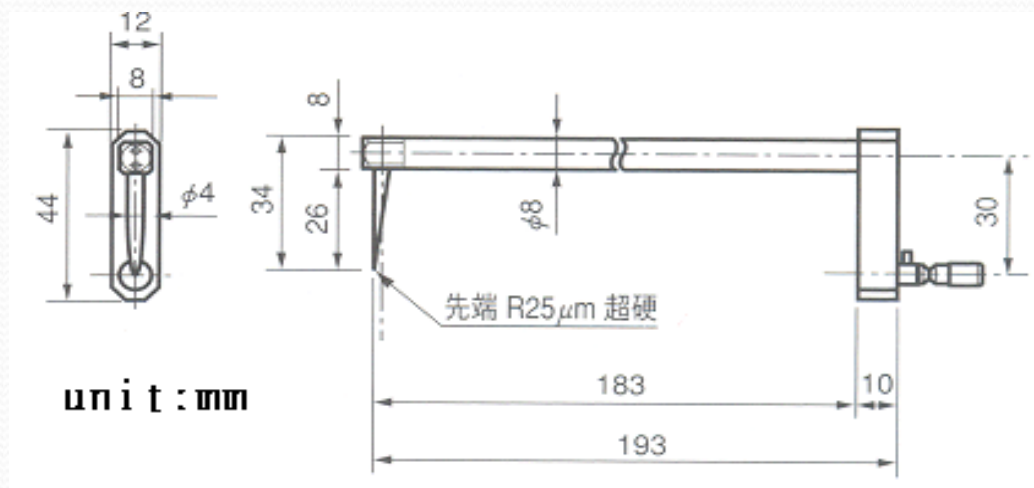
- Measuring Range 600um
- Resolution 0.1nm
- Tip Radius R2um, Diamond
- Measuring Force 0.75mN



PICK-UP2 : PU-FJ25(contour only)

- Measuring Range 50mm
- Stylus R25um, Tungusten Carbide
- Measuring force 10~30mN
- Resolution 0.1um





Y-Axis Motorized Stage RAF-22D

- Stage size 50x50mm
- carrying capacity 5kg
- Range 50mm
- Minimum Sampling Pitch 1μm
- X/Y stage tilting adjustment



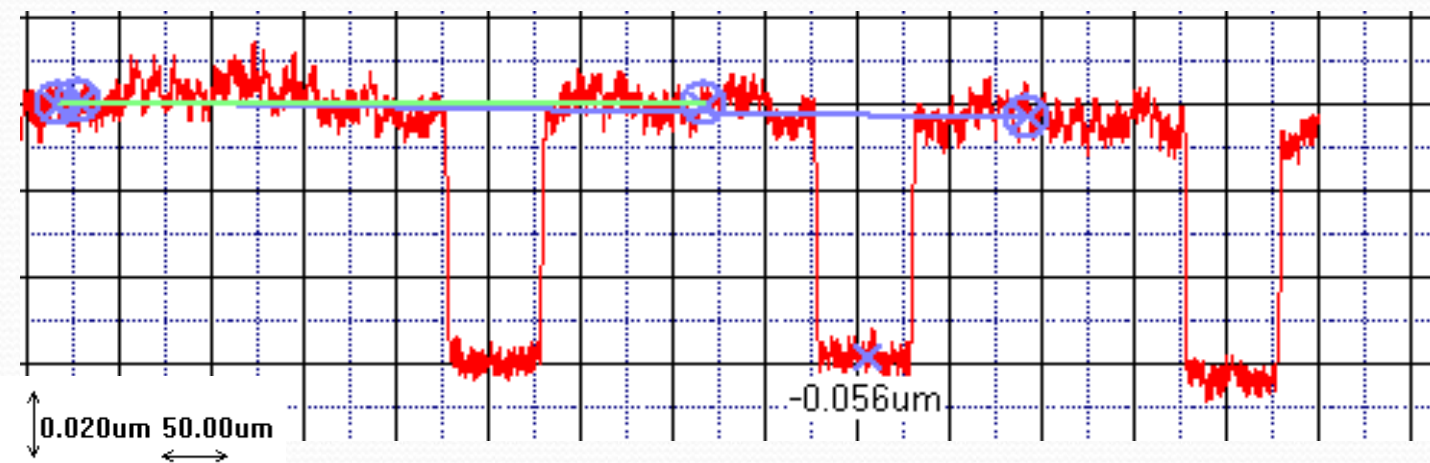
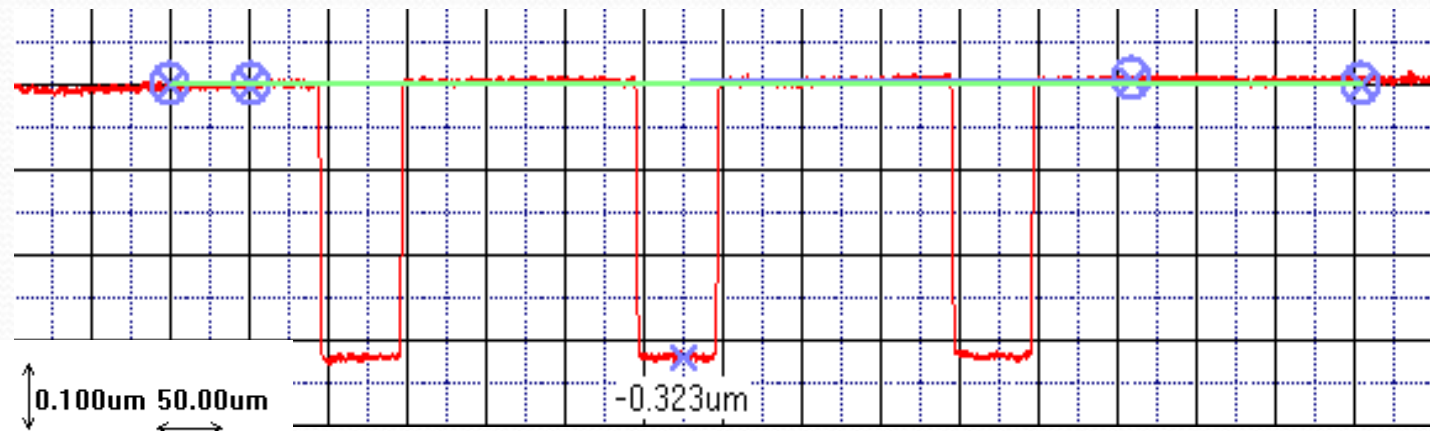
Step Analysis

Measuring Range Vertical 600um/Horizontal 100mm

The screenshot displays the 'Step Analysis' software interface with the following settings and controls:

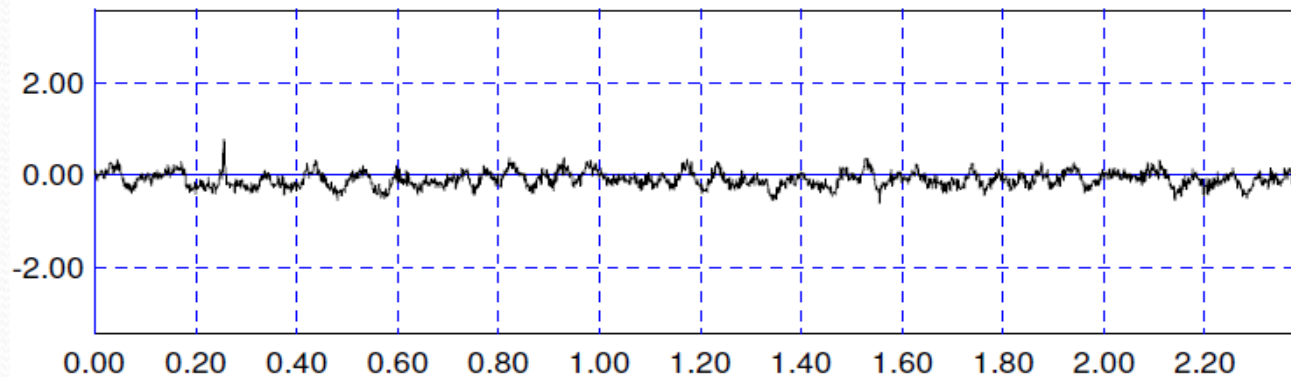
- V.Mag:** x50,000
- H.Mag:** AUTO
- M.Speed:** 0.1 mm/s
- Standards:** JIS'01/ISO'97(Roughness)
- Cutoff:** R+W
- Filter:** Gauss
- Levelling:** Free two points
- Select Pick-up:** PickUp1
- Return Speed:** Max Speed
- 4:AutoReturn:** ☒
- 1:AutoStop:** ☒
- 3:AutoEscape:** ☒ Escape Value: 10.0 mm
- Invert polarity:** ☐
- Discontinued Meas.:** ☐ Discontinue Level: 0.0000 um
- E.length:** Free
- Start-up:** 0
- T.length:** 1.000 mm
- Series:** 1
- Buttons:** Save Condition, Load Condition, Comment, Set Parameters, Sampling points detail settings, Setting the series meas., Meas, Cancel, OK

Diagrammatic elements include a central blue arrow pointing down, a horizontal blue arrow pointing left, a vertical blue arrow pointing up, and a red zigzag line representing a surface profile within a rectangular frame.



Roughness Analysis

R2um	
Cutoff	0.8mm
Filter	2CR
E.length	2.400mm
Ra	0.15um
Ry	1.06um
Rz	0.81um



- **Measurement Parameters**

Ra, Rq, Ry, Rmax, Rt, Rz, Rz5, Rz3, R3z, R3zmax, RzmaxD, RzD, Sk, Ku, Pc, HSC, PPI, Rpm, Sl, Sm, S, Rp, Rv, θa , θq , $\triangle a$, $\triangle q$, λa , λq , K, tp, BC, ADC, FFT, Rk, Rpk, Rvk, Mr1, Mr2, Wca, Wcm, Wea, Wem, etc.

- **Magnification**

Vertical 50 ~ 500,000

Horizontal 1 ~ 5,000

- **Driver speed** 0.05, 0.1, 0.2, 0.5, 1, 2.5, 10mm/S, Manual

- **Cut-off**

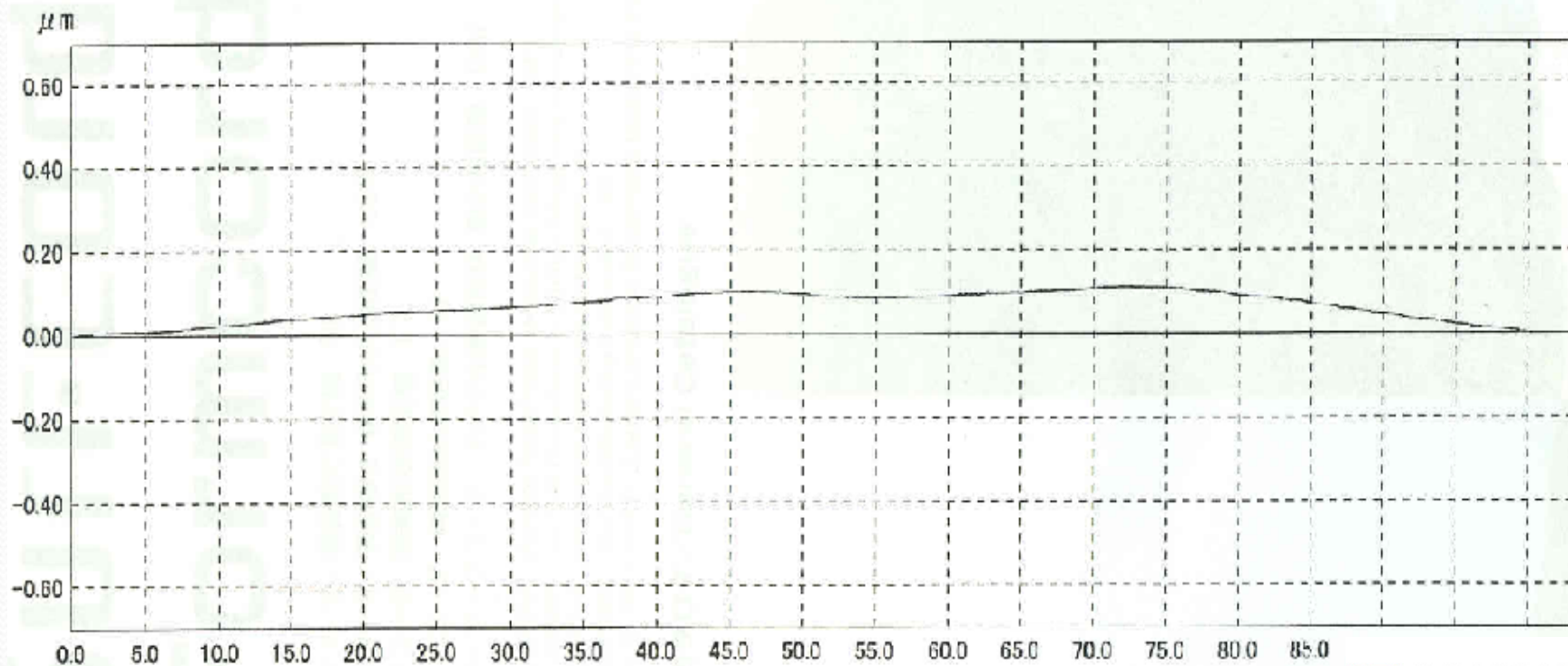
Roughness: λc 0.008, 0.025, 0.08, 0.25, 0.8, 2.5, 8mm, R+W

Waviness: λf 0.8, 2.5, 8, 25mm , fh 0.08, 0.25, 0.8, 2.5mm

Flatness Analysis

- Straightness Accuracy 0.2 μ m less/100mm

管理番号M207-022H (検定用オプチカルフラット $\phi 130$ mm 平面度+0.04 μ m使用)
CTRL No.M207-022H(Using optical flat : flatness +0.04 μ m/ $\phi 130$ mm)



3D Figure Analysis

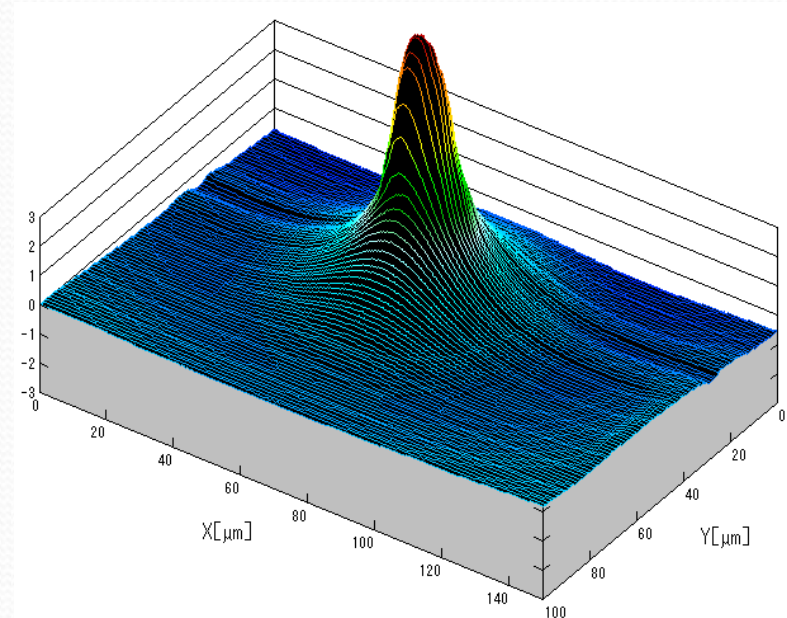
- Min. Sampling Pitch 1 μ m
- Measuring Range Z 600 μ m / X 100mm / Y 50mm
- Analysis items

Flat Map

Bird's-eye Map

2D section Analysis

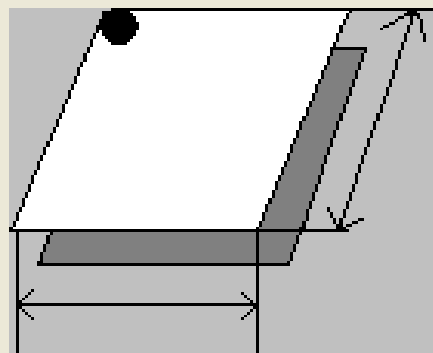
3D roughness



Meas. Condition

Starting

Position Xs : 0 um , Ys : 0 um

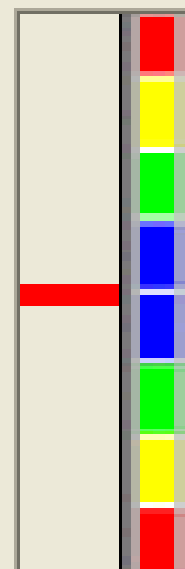


Yl : 300.0um

Yp : 1.0 um

Yn : 301 Lines

Z



65.534 um

-65.536 um

Xl : 400.0 um

Xp : 1.0 um

Xn : 401 Pts.

Meas. : 0.100 mm/s

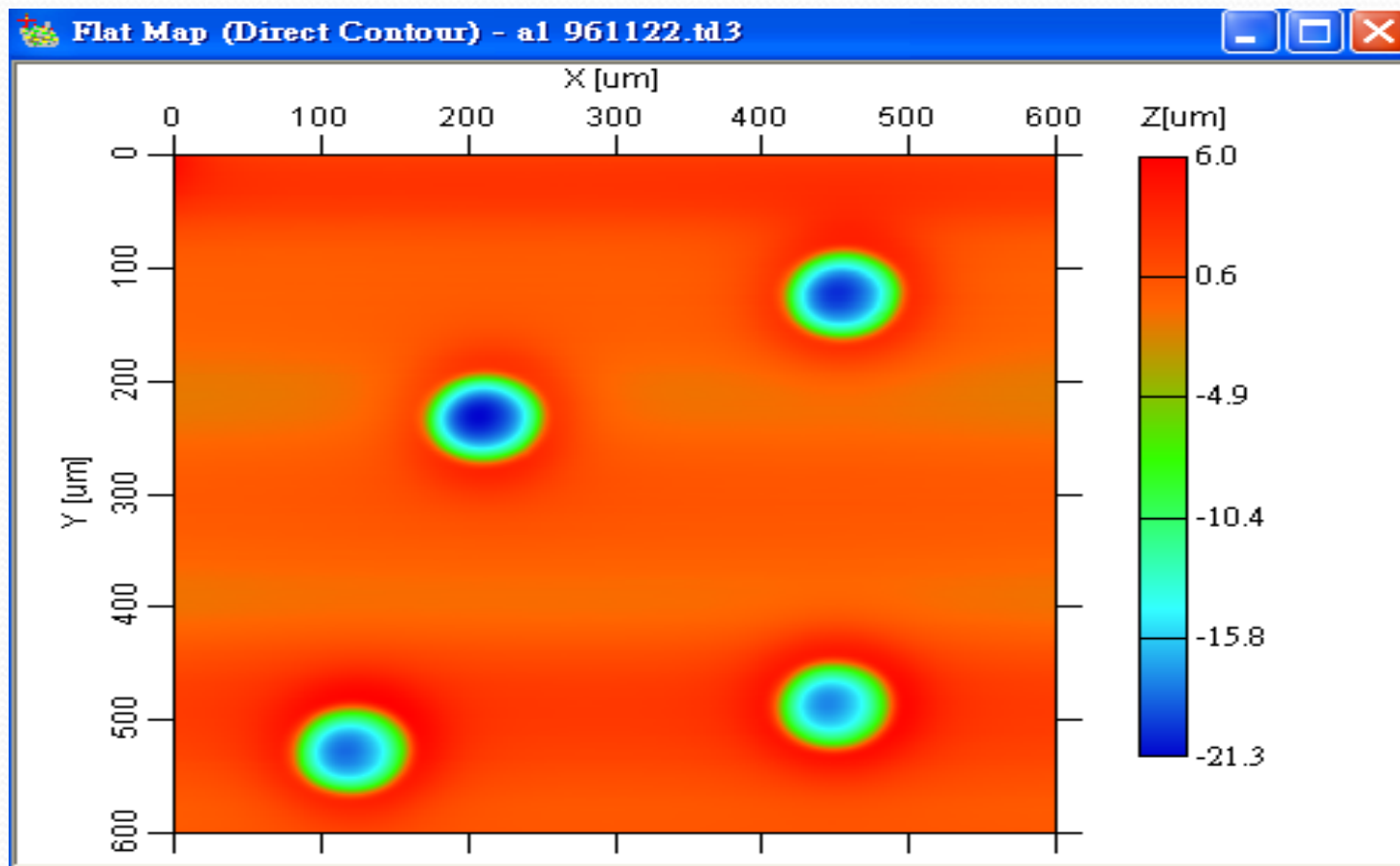
Z Meas. : 10000 Times

Expect Measurement : 01:55:00

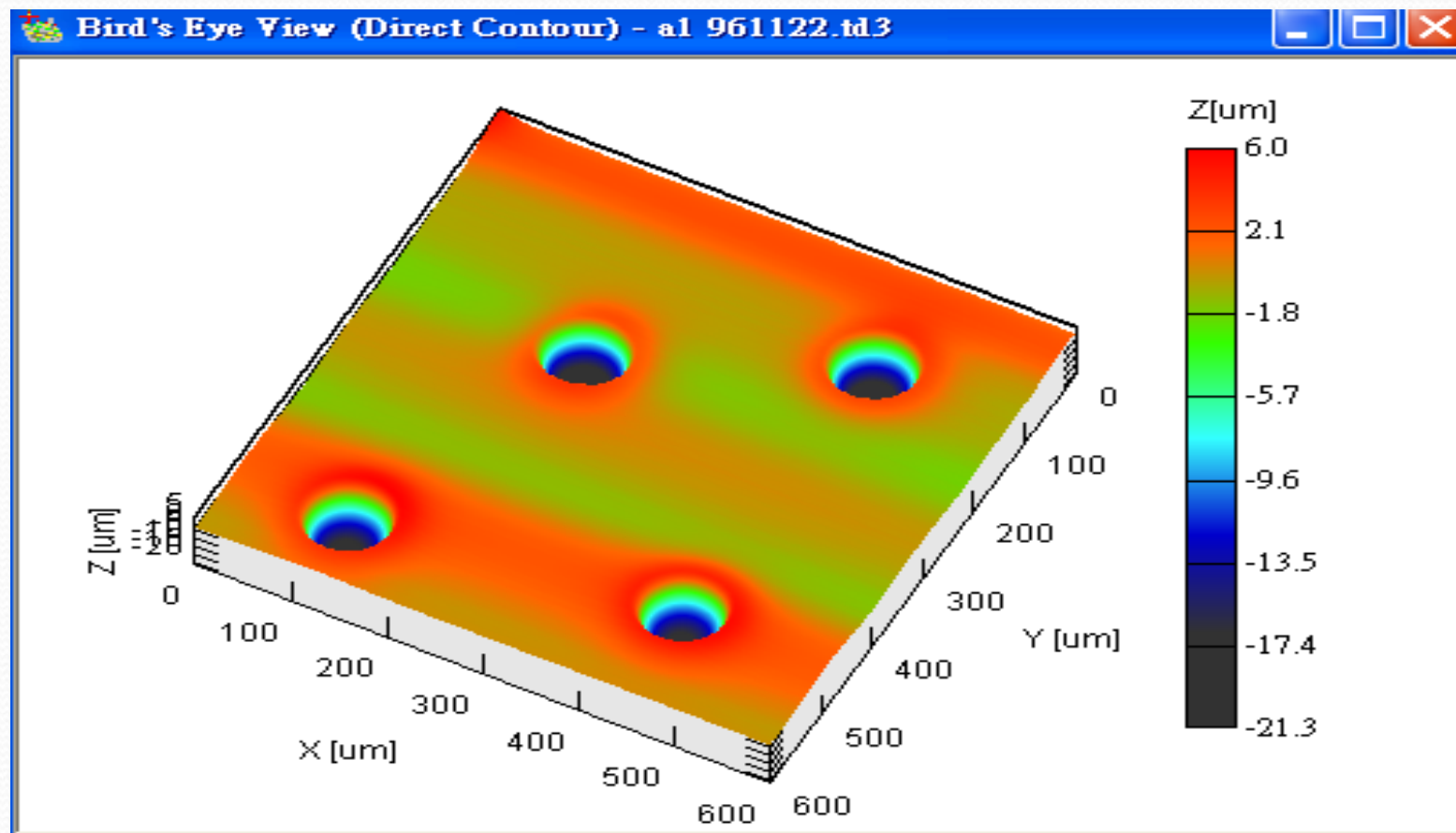
Sensitivity Coefficient : 1.00600

 SANPANY

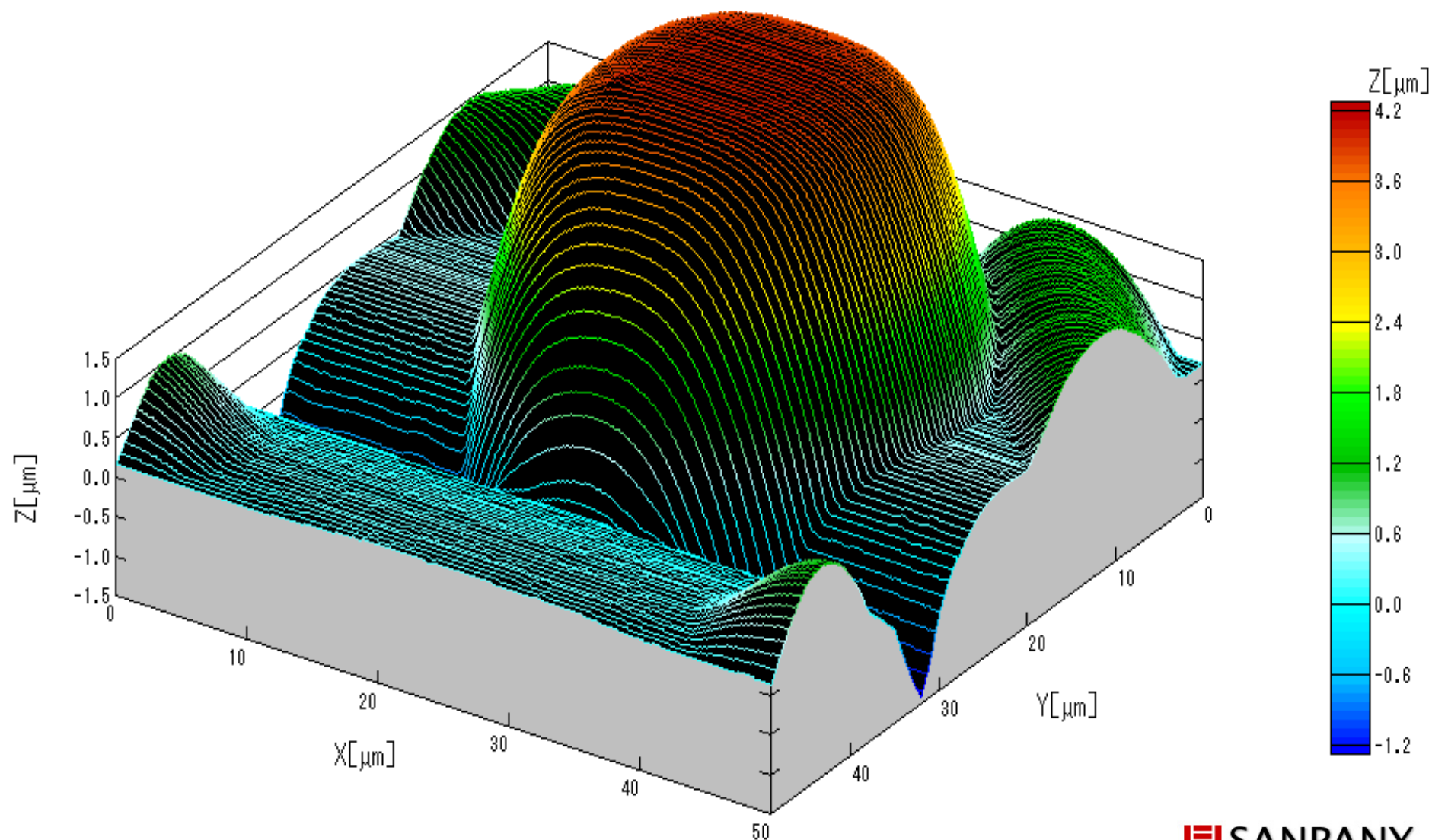
Flat Map



Bird's-eye Map



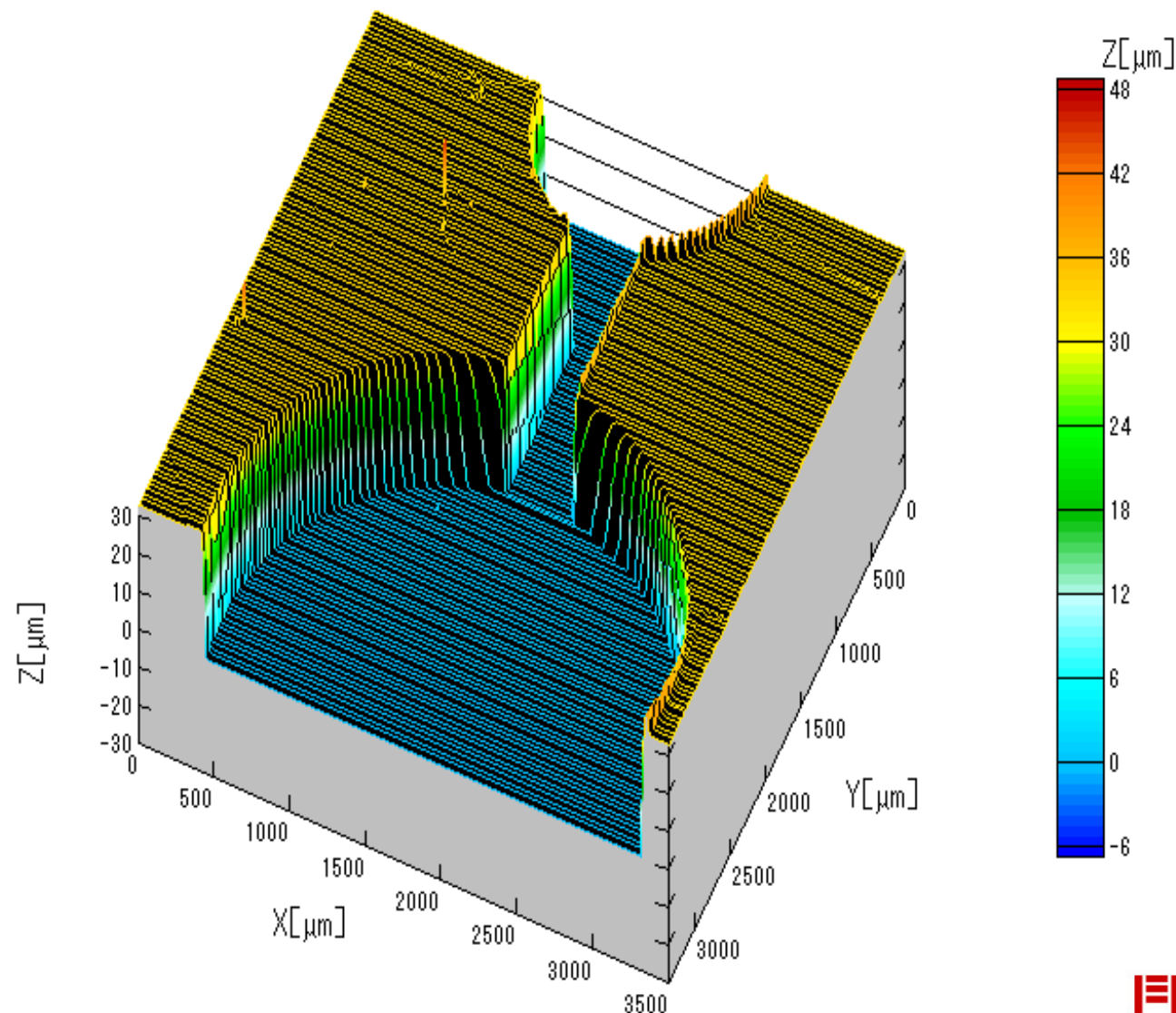
X Scan Lines	File : CMOPS0~1.TDA	Date,Time : 04.03.04 16:57	X speed : 0.05 mm/s
		X pitch : 0.10 μm	Low cut : R+W
		Y pitch : 1 μm	High cut : R+W
		Z mag. : 10000	Leveling : not leveled



SANPANY

(Y mag.)/(X mag.)=1, (Z mag.)/(X mag.)=5, (rot. ang.)=34, (view ang.)=26, (line num.)=101, (Z origin)=(undefined)

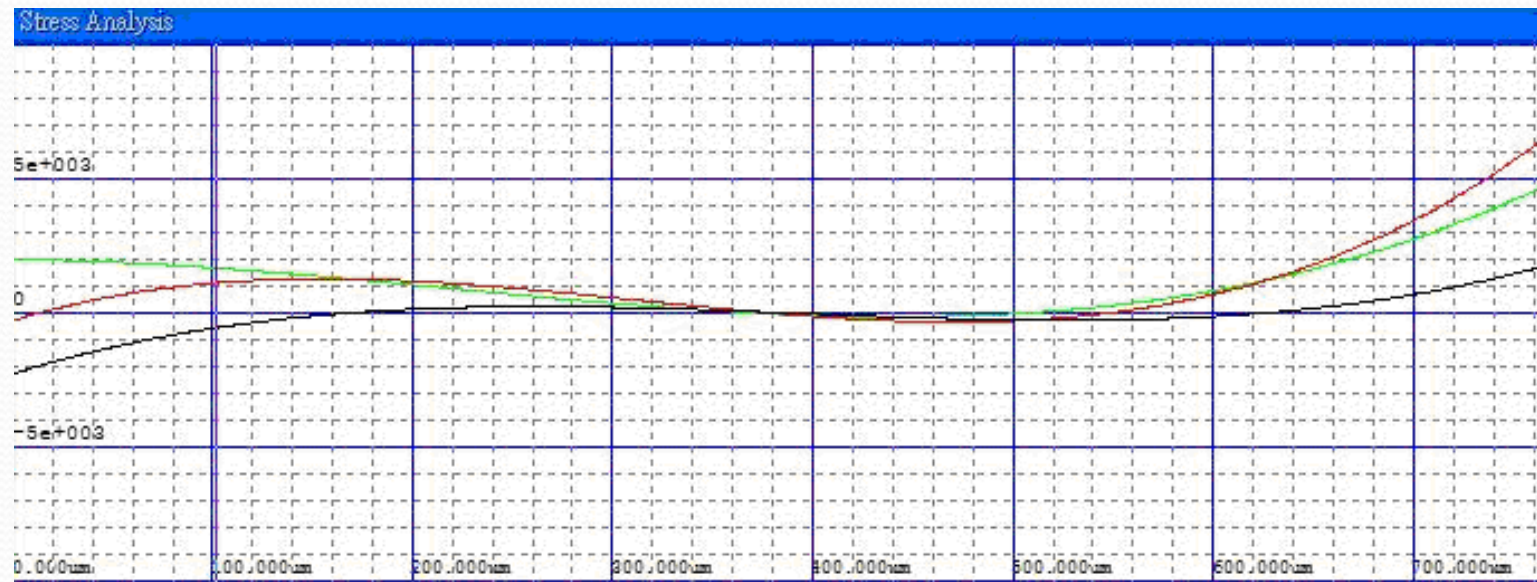
X Scan Lines	File : NCKU6.TDA	Date,Time : 02.06.21 14:32	X speed : 0.2 mm/s
		X pitch : 0.80 μm	Low cut : R+W
		Y pitch : 15 μm	High cut : R+W
		Z mag. : 2000	Leveling : many-points



SANPANY

(Y mag.)/(X mag.)=1, (Z mag.)/(X mag.)=40, (rot. ang.)=25, (view ang.)=59, (line num.)=101, (Z origin)=(origin by mp-method)

Stress Analysis



Item	Value
BeforeData	_SS-T A C-X_No.0_
AfterData	_SS-T A C-Y_No.1_
Area	0.000 [mm] ~ 0.800 [mm]
Stress - Max	2.5e+003
Stress - Min	-2.24e+003
Stress - Ave	19.4

E:Young's modulus

V:Poisson's ratio

ds:Base [mm]

df:Film[mm]

Contour Analysis

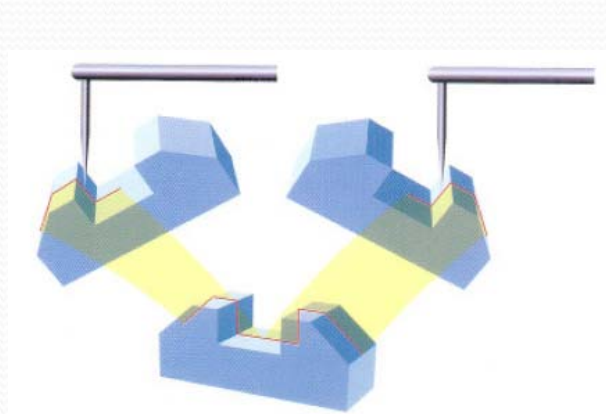
stylus traceable angle Ascend 77° / descend 87°

Measuring Range Vertical 600um/Horizontal 100mm

Straightness 1um/100mm

Z axis/X axis Resolution 0.1um

Driver Speed 0.02、0.05、0.1、0.2、0.5、1、2、
10mm/s & manual

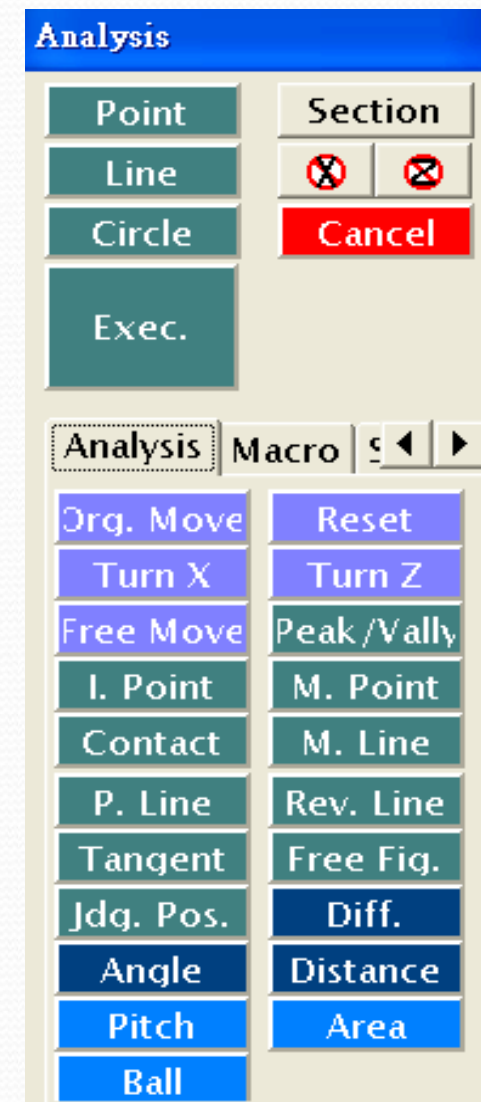


- **Element Analysis**

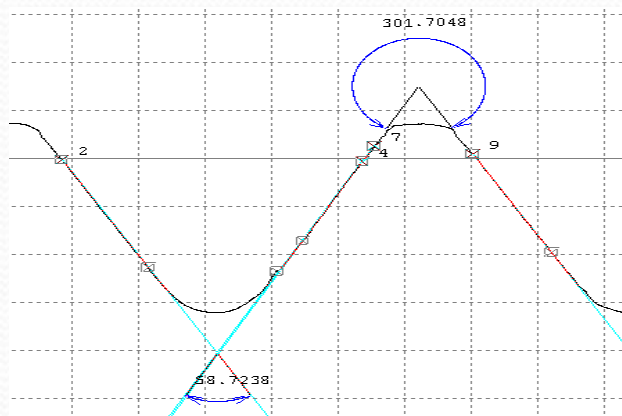
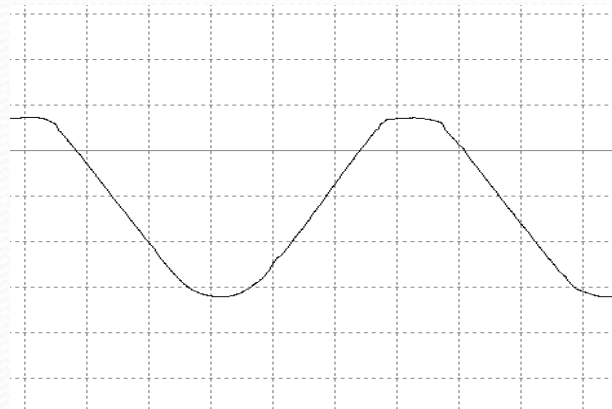
point, line, circle, Peak/valley,
intersecting point, middle point,
middle line, perpendicular line, etc.

- **Scalar Analysis**

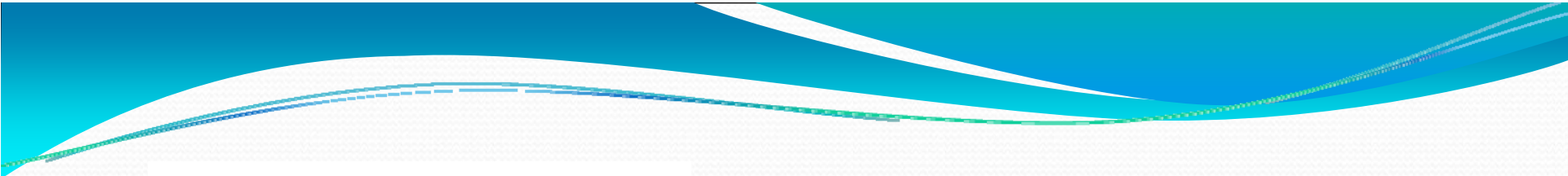
coordinate, difference, angle,
distance, pitch, area, etc.



尺寸分析



Analysis	
Point	Section
Line	☒ ☒
Circle	Cancel
Exec.	
Analysis Macro ← →	
Org. Move	Reset
Turn X	Turn Z
Free Move	Peak/Vally
I. Point	M. Point
Contact	M. Line
P. Line	Rev. Line
Tangent	Free Fig.
Jdq. Pos.	Diff.
Angle	Distance
Pitch	Area
Ball	



 **SANPANY BLESS YOU**

www.sanpany.com.tw

TEL: (02) 2392-3433

FAX: (02) 2392-3463

台北市忠孝東路一段112號6樓(捷運善導寺站)

三朋儀器公司 黃文石

winsten@sanpany.com.tw